Index to Contents, March 1945

(The Annual Index to Contents appears at the back of the December issue each year)

Airports and Aviation
New Airports ... 93
Joint Planning By Cities ... 94
An Airline for Yourville ... 102

Business Machines and Systems
Perpetual Inventory of Textbooks ... 103
Quick Photo Copies, Maps and Letters 104

Citizens and Government
Quiz, "City and the Citizen" ... 92, 137

City Manager Plan
City Manager Appointments ... 115

Conferences and Conventions
Conventions Still Scheduled ... 141
Conventions Cancelled ... 141

Education and Publicity
Clean Up-Paint Up Campaign ... 5
Handbook on Sewage Systems Hazards ... 13
Taxpayer's Dollar into Pictures ... 89

Employment Problems
Post-War Jobs Through Public Works 5
Helping Veteran to Find His Place ... 75

Finance and Taxation
Post-War Jobs Through Public Works ... 5
Tax-Reverted Property ... 88
Taxpayer's Dollar into Pictures ... 89
Winning Fight for a People's Shoreline 95
Parking Meters Cut Tax Rate ... 100
Madison Studies Sources of Revenue ... 113
Municipal Bond Market ... 115
When Municipalities Sell Bonds ... 137

Fire Prevention and Control
Fighting Fires at Airports ... 11
Municipal Insurance ... 11
Why it Burned ... 11

Gardens, Victory
Healthful Food and Exercise ... 15
National Victory Garden Contest ... 82
Water for Victory Gardens ... 82
Victory Gardens—Urgent Community Responsibility ... 111

Government and Administration
Taxpayer's Dollar into Pictures ... 89
State Citizens Council Confers ... 90
In-Service Training in Governmental Planning ... 97
State Commerce Dept. Aids Planning ... 113
City and County Home Rule, Missouri 127
Units of Local Government ... 137

Housing
"Bricks and Mortar" ... 115
Elimination of Substandard Housing ... 139

Human Side of City Hall
Taxpayer's Dollar into Pictures ... 89

Insurance, Municipal
Municipal Insurance ... 11

Laws and Legal Decisions
To Correct Erosion of New York's Coastline ... 81
Homestead Exemption, Texas Cities ... 107
Zoning and Planning Notes ... 135
Elimination of Substandard Housing ... 139
Municipal Law Notes and Decisions ... 139

Letters to the Editor
Units of Local Government ... 137
When Municipalities Sell Bonds ... 137

Lighting, Outdoor
Keep Minimum Lighting ... 117
Post-War Street Lighting Plans ... 117
Night Safety on the Home Front ... 121

News and Illustrations
Items from Manufacturers, etc ... 147

Parking Meters
Parking Meters Cut Tax Rate ... 100
Signals for Coming Traffic ... 101

Planning and Zoning
Post-War Jobs Through Public Works ... 5
Stepping Up Post-War Planning Tempo 7
Blueprinting for Public Works ... 9
Street Planning, Philadelphia and Pittsburgh ... 80
To Correct Erosion of New York's Coastline ... 81
State Citizens Council Confers ... 90
Plans to Rehabilitate Philadelphia ... 91
Winning Fight for a People's Shoreline 95
Community Recreational Programs ... 96
An Airline for Yourville ... 102
Cities Report Post-War Plans ... 106
California Surveys Opportunities ... 109
State Commerce Dept. Aids Planning ... 113
Zoning and Planning Notes ... 135
Planning Program, Wilmington, N. C. 141

Public Health
Bactericidal Action of Chlorine ... 15
Healthful Food and Exercise ... 15
Home Water Disinfection ... 15
Superior Health in Guadalcanal ... 15
Kansas City Remodels Settling Basins ... 77
Red Color Removed From Water ... 99

Public Safety
Fighting Fires at Airports ... 11
Municipal Insurance ... 11
Why it Burned ... 11

Real Estate
Tax-Reverted Property ... 88
Free Lots for Veterans ... 107

Records, Municipal
Perpetual Inventory of Textbooks ... 103

Recreation
Winning Fight for a People's Shoreline 95
Community Recreational Programs ... 96

Refuse
Why Waste Coal Ashes? ... 111

Sewerage and Sewage Disposal
Advertise and Sell Your Sludge ... 13
Check-List for Sewerage Planning ... 13
Handbook on Sewage Systems Hazards 13
Post-War Sanitary Engineering ... 13
From WPA to Priorities ... 83
Smoothing Out the Kinks ... 85

Street Construction and Maintenance
New Street in Miami ... 17
Post-War Street Work, Vermont ... 17
Proposed Expressway, Texas ... 17
Street Planning, Philadelphia and Pittsburgh ... 80
From WPA to Priorities ... 83
Street Surfaces Revitalized—Dallas ... 98
Post-War Challenge to Traffic ... 129
Bare Pavements Safest ... 133

Traffic and Transportation
Speeding Millions to and from Work ... 7
Proposed Expressway, Texas ... 17
Good Transit a Public Responsibility ... 87
New Airports ... 93
Joint Planning by Cities ... 94
Parking Meters Cut Tax Rate ... 100
Signals for Coming Traffic ... 101
Metropolitan Transit Authority, Chicago 113
Post-War Challenge to Traffic ... 129
Toledo's Parking Problem ... 129
Traffic Line Marking ... 131
Bare Pavements Safest ... 133
Cleveland Orders More Trolley Coaches 133

Veterans' Service
Post-War Jobs Through Public Works 5
Helping Veteran to Find His Place ... 75
Free Lots for Veterans ... 107

Water Supply and Purification
Blueprinting for Public Works ... 9
Check-List for Water Works Planning 9
New A.W.W.A. Officers ... 9
Kansas City Remodels Settling Basins ... 77
Water for Victory Gardens ... 82
Cathodic Protection ... 84
Red Color Removed from Water ... 99
Wartime Water Rates ... 105
Wartime Water Works Projects ... 123

Vol. LX MARCH
No. 3 1945

The American City

Issued Monthly by the
American City Magazine Corporation
470 Fourth Ave., New York 16

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Subscription, $2 per annum in
United States and Canada
($3 to foreign countries)
Singles copies, 35c: Back number, 50c
Entered as second-class matter, July 20, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879.
Printed in U. S. A.

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THE MUNICIPAL INDEX AND ATLAS used in connection with the current advertisements in THE AMERICAN CITY, places local officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. THE MUNICIPAL INDEX AND ATLAS (664 pages) is published annually by THE AMERICAN CITY MAGAZINE CORPORATION, 470 Fourth Avenue, New York 16, N. Y.

See pp. 19, 20, 22, 24, 26, 143, 145 for catalogs and publications on municipal and civic subjects

For Index to Advertisements see page 178

Sometimes There's Quite a Crowd

Maybe you don't realize it, because so many Long Distance calls go through so promptly.

But sometimes, in some places, there's an extra heavy rush and all available circuits are in use and people are waiting.

Then the operator will make this wartime suggestion—"Please limit your call to 5 minutes."

BELL TELEPHONE SYSTEM

Post-War Jobs Through Public Works

A Fact or a Myth?

ASKING this question regarding the preparation of plans for post-war public works as authorized by Title V of the War Mobilization and Reconversion Act of 1944, the United States Conference of Mayors submitted on February 22 a vigorously worded report to the Senate Committee on Appropriations.

This report was occasioned by the action of the House of Representatives in eliminating most of the appropriation which had been requested by President Roosevelt to carry out the purposes of the above-mentioned act. Said the statement of the Mayors' Conference:

"It is clear that, when the Congress of the United States enacted the War Mobilization and Reconversion Act of 1944, it recognized the importance and need for a carefully planned non-federal public works program as an employment measure to provide a substantial volume of jobs for potentially great numbers of unemployed returning veterans and displaced workers in war production.

"Title V of this carefully drafted law authorized advances of federal funds to cities, states, counties, and other public bodies, for the *preparation of detailed engineering and architectural plans and specifications for post-war public works*—to the end that such projects would be ready to go *in the event* the Government of the United States determined that work for its people constituted a national responsibility.

"In this title the authors of the War Mobilization and Reconversion Act of 1944 simply provided for insurance against destitution and want being met by ill-conceived and wasteful temporary measures.

"Thus it was that the Congress, in the Fall of 1944, exercised vision and foresight as to one phase of economic stabilization in the transition and reconversion period.

$78 Million or $5 Million?

"To carry out the provisions of Title V of the War Mobilization and Reconversion Act, the President of the United States on January 17 last transmitted a request to the Speaker of the House of Representatives calling for an appropriation of $78,115,000. The House Appropriations Committee reduced the amount requested by the Bureau of the Budget to $5,000,000, which action was approved by the House.

"The item is now before the Senate Appropriations Committee in the Federal Works Agency section of the pending Independent Offices Appropriation Bill. Should the action of the House be sustained by the Senate Appropriations Committee and the Senate, the United States Conference of Mayors wishes to record itself at this time as stating that the provisions of Title V of the War Mobilization and Reconversion Act have been gutted and sabotaged.

"If, as a matter of national policy, public works are to serve as a cushion against potential widespread post-war unemployment, an appropriation of 5 millions is a useless and futile gesture, and is so inadequate as to constitute no appropriation at all. The amount might better be eliminated *completely*. . . .

"It is unthinkable that the Congress of the United States will fail to provide for this—one of the major phases of any overall reemployment program.

"The cities are willing and ready to spend several billions of local taxpayers' funds for needed and useful community public works, as a part of a national reemployment program. Plans and specifications, funds for which are now lacking in many jurisdictions, are required if a shelf and reservoir of projects are to be ready when hostilities cease.

"There are many who proclaim they do not want another WPA. *Failure to plan now* for really useful and needed projects can only lead to a makeshift work-relief program and consequently waste of manpower and funds."

Reports from 74 Cities

To the end that the Senate Appropriations Committee might understand the extent to which planning is required, and the volume of job-giving work which is possible, there was appended to this report from the United States Conference of Mayors individual statements from 74 of the major cities of the Nation. These reports, occupying 24 mimeographed pages, may be summarized as follows as to total the estimated construction costs of local post-war projects needing detailed planning, where definite figures were given:

Philadelphia, Pa.	$100,000,000
St. Louis, Mo.	63,385,000
Pittsburgh, Pa.	35,000,000
Portland, Ore.	40,000,000
Baltimore, Ohio	67,000,000
New Orleans, La.	131,000,000
Milwaukee, Wis.	45,274,800
Newark, N. J.	10,000,000
Louisville, Ky.	68,350,000
Toledo, Ohio	38,000,000
Norfolk, Va.	500,000
Richmond, Va.	20,000,000
Flint, Mich.	17,000,000
Buffalo, N. Y.	50,000,000
Paterson, N. J.	10,000,000
Miami, Fla.	53,000,000
Youngstown, Ohio	10,000,000
Columbus, Ohio	25,000,000
Oklahoma City, Okla.	10,000,000
Tampa, Fla.	10,250,000
Waterbury, Conn.	1,950,000
Akron, Ohio	50,000,000
Gary, Ind.	10,000,000
East St. Louis, Ill.	15,000,000
Little Rock, Ark.	9,973,850
Birmingham, Ala.	35,000,000
Davenport, Iowa	2,000,000
Shreveport, La.	25,000,000
Sioux City, Iowa	8,000,000
Cedar Rapids, Iowa	3,000,000
Roanoke, Va.	6,810,000
Springfield, Ohio	6,500,000
Irvington, N. J.	3,000,000
Columbia, S. C.	6,000,000
Utica, N. Y.	6,000,000
Rockford, Ill.	4,680,000
McKeesport, Pa.	7,600,000
Terre Haute, Ind.	3,500,000
Decatur, Ill.	1,000,000
Pontiac, Mich.	19,697,081
Schenectady, N. Y.	7,500,000
Hazelton, Pa.	2,771,150
Mount Vernon, N. Y.	3,125,000

In addition to the municipalities listed above, reports were submitted by the mayors or other officials of several other large cities which, without giving definite figures as to contemplated projects, strongly urged adequate federal aid for planning. These cities included Los Angeles and San Francisco, Calif.; Boston, Mass.; Kansas City, Mo.; Louisville, Ky.; Fort Worth, Texas; Tulsa, Okla.; Dayton, Ohio; Tacoma, Wash.; Erie, Pa.; Savannah, Ga.; Glendale, Calif.; Tyler, Texas; Hammond, Ind.; South Bend, Ind; Haverhill, Mass.; Mobile, Ala.; St. Joseph, Mo.; Madison, Wis.; Winston Salem, N. C.; Huntington, W. Va.; Brockton, Mass.; Quincy, Ill.; Harrisburg, Pa.; Altoona, Pa.; Stamford, Conn.; Union City, N. J.; St. Petersburg, Fla.; Troy, N. Y.; Salt Lake City, Utah; and Kalamazoo, Mich.

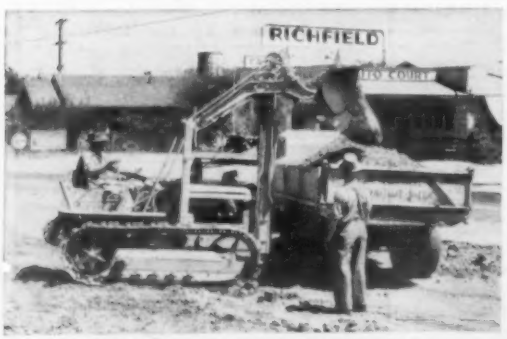
Aids Available for Clean Up, Paint Up, Fix Up Campaigns

In addition to the ambitious plans that many cities are making for post-war improvements involving substantial expenditures, much can be done at small cost for community attractiveness by improving the appearance of what now exists.

A source of practical suggestions in this field of community rehabilitation is the *National Clean Up and Paint Up Campaign Bureau*, 1500 Rhode Island Avenue, N. W., Washington 5, D. C. THE AMERICAN CITY is informed by R. W. Emerson, Executive Secretary, that the Bureau will be glad to send a Handbook, publicity releases, and other suggestions, to any city official or local agency interested in putting on a campaign for eradicating eyesores and improving the appearance of business and residential districts.

ABOVE: Big T7 with 2½ yard bucket rips up old asphalt pavement and loads it.

INDIANA — T4 TRAXCAVATOR cleaning up excess shoulder dirt after completion of paving.



CALIFORNIA — T2 TRAXCAVATOR making a one foot cut on 500 feet of street preparatory to resurfacing.

AN operator does more and better work with a TRAXCAVATOR because he can always see what he's doing and where he is going. Operator visibility plus compact, maneuverable "Caterpillar" track-type tractor power also assures big production even in close-quarter precision work. If you've never seen a TRAXCAVATOR in action, there's a surprise in store for you when you realize its performance and profit possibilities for a wide variety of digging, grading and loading jobs. See your TRACKSON-"Caterpillar" dealer today. Let him show you why these machines do more work on more jobs — quicker and easier. Ask him for literature or write direct to TRACKSON COMPANY, Milwaukee 1, Wis.

Shortage Quiet 5.8.46

Our Municipal Notebook

Stepping Up Your Post-War Planning Tempo

POST-WAR planning must continue despite official efforts to bring about a more sober public attitude toward the war," cautions H. E. Foreman, managing director of the Associated General Contractors of America, Munsey Building, Washington, D. C.

One wonders sometimes whether or not straightforward war communiques would be sufficient to keep the public alive to the war and still in mental balance. Certainly the daily optimism of newspaper headlines must be based on an official point of view, accepted as desirable for the general morale.

With respect to post-war planning, the graver the situation and the longer the duration, the more earnestly and energetically should plans for the future be pushed to completion and temporarily filed one on top of another. These developments will be our life-and-liberty bulwarks in the years ahead.

Mr. Foreman points out that the construction industry has the capacity of operating at a rate which will provide approximately 2,400,000 jobs at the site and stimulate the employment of 5,000,000 others off the site by a year after the end of the war. "It can do this," he said, "provided plans and specifications are drawn up in advance so that an immediate start can be made on hundreds of projects when conditions permit."

Jobs

Mr. Foreman is not only talking about 12 percent of 60,000,000 jobs but also about maintaining an America which, by keeping busy in a peaceful world, can once again pursue happiness in the light of individual liberty.

City officials and business and civic leaders are unlikely to *sit down and rest* "in a more sober attitude toward the war." They will speed up their planning, if possible, to help make the post-bellum years less sober than they would certainly be under a totalitarian government made necessary by a devastating depression.

Speeding the Millions To and From Work

PEOPLE used to take a trolley car so as not to get to their destination too quickly afoot. The famous Transit Presidents' Conference Car, now operating in 16 cities, was designed to get places not much behind automobile time and to make the journeys comfortable in boarding, seating, warmth, lighting and alighting. There are over 2,000 of these up-to-the-minute cars in operation and hundreds on order.

The complete results of this modern mode of city transportation are described and discussed in the Westinghouse Electric & Mfg. Co.'s booklet, "Operating Results with P.C.C. Cars." This booklet is illustrated with tables, statistics and pictures, and not only shows scheduled speed increases, construction details and results attained in every city, but sprinkled through the pages are many facts showing the public's appreciation of this first-class transit service. For instance:

"The P.C.C. car was developed, designed and built to meet the requirements of cities for superlatively speedy, safe and comfortable electric railway transit service . . . to operate economically under American street traffic conditions . . . to satisfy the public's desire for the best in performance, convenience and appearance.

"In cities where it operates, the P.C.C. car is the most popular public transit vehicle.

"Affords the public maximum transit speed consistent with safe operation under varying traffic conditions . . . with the cooperation of city authorities . . . enables more people to get to their destinations in the shortest time . . . due to the high yet smooth rates of acceleration and braking, and a balancing speed comparable with modern automobile performance in city traffic.

"In spite of the heavy increase in street car patronage due to war activities, accidents with P.C.C. cars have decreased."

A progressive city must have first-class local transportation. Progressive cities are planning to have it.

Modern Presidents' Conference Cars operating in Philadelphia, Pa., and Baltimore, Md.

HERE'S A FAIR QUESTION....

what benefits should a city expect from-

HORTON
ELEVATED STORAGE?

Space permits only a mere mention of the many benefits that a municipality can derive from adequate elevated water storage.

To begin with, an elevated tank like the 1,000,000-gal. installation shown above at San Antonio, Texas, will generally be the prime factor in improving the pressure conditions throughout the entire distribution system. Secondly, with elevated storage, minimum pumping capacity is required, since peak loads can be carried by surplus drawn from the elevated tank. At many locations elevated tanks are of sufficient capacity to supply the entire load for several hours at the average rate of consumption. The fact that mains need only handle average pumpage instead of peak loads is also a definite advantage. Fire protection, a reserve available in case of temporary power failure, and reduction in pumping costs—are other benefits of elevated water storage.

City officials and water works engineers planning improvements in existing water supply systems are invited to write for information and estimating data on Horton elevated tanks.

CHICAGO BRIDGE & IRON COMPANY

Birmingham 1.....1502 North Fiftieth Street
Houston 1.....5601 Clinton Drive
Tulsa 3.....1625 Hunt Building
New York 6....3308—165 Broadway Building
Cleveland 15.....2236 Guildhall Building

Chicago 4.....2127 McCormick Building
San Francisco 5.....1033 Rialto Building
Philadelphia 3.1616-1700 Walnut St. Building
Los Angeles 14.....1403 Wm. Fox Building
Washington 4.....703 Atlantic Building

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA

Water Works

Check-List for Water Works Post-War Planning

IN a recent issue of a "Blueprint Now" leaflet published by the Committee on Water and Sewage Works Development is a check-list to aid water-works superintendents or managers to start the ball rolling for post-war planning for water works. If yours is one of the cities that have not undertaken any post-war planning for water works or are as yet in the preliminary stage of planning, this list will give you an excellent check of your system and point out to you what additions you need to enable your system to provide adequately and efficiently for the post-war needs of your community. A copy of this list and the leaflet described below may be obtained by writing the Committee on Water and Sewage Works Development, Suite 2110, 500 Fifth Ave., New York 18, N. Y.

Blueprinting for Post-War Public Works

THE Committee on Water and Sewage Works Development has just released its third bulletin of "Blueprint Now—In Action" devoted to the planning completed by municipalities, and designed to stimulate action on the part of other cities not yet in the planning stage.

This is a brief of the following cities and what they are doing:

South Gate, Calif.: This city of 26,946 has a post-war program of 19 separate projects planned and one-third the estimated cost of these projects on hand to start the work, a fund which is ample to complete five water projects. One item, the construction of a reservoir, is ready to go and the contract for its erection has already been let.

Madisonville, Ky.: Strother Branson, Superintendent of Municipal Utilities, laid before the City Council a post-war plan for improving the city's sewage system, the reconstruction of the sewage treatment plant, the construction of a water reservoir, the enlargement of the filtration plant and the improvement of the electrical distribution system.

Brainerd, Minn.: A community of 12,000 has a Committee for Economic Development which has published a 48-page booklet entitled "Work Pile and Post-War Planning Survey" which lists its recommendations and classifies them as A—Urgent, B—Fairly Urgent, and C—Less Urgent. These include a $90,000 filter plant addition, a $10,000 waterline extension, $300,000 for storm sewers, $100,000 for a water reservoir, and $50,000 for an elevated water reservoir.

Miami, Fla.: Here extensive plans for sewage system improvements have been made to provide this service to two-thirds of Miami's population which now uses septic tanks. Revenue bonds to be offered for sale early in 1945 will provide the estimated $13,500,000 cost of the project. In addition to this $2,500,000 worth of revenue bonds to improve the water system will be issued.

Savannah, Ga.: Voters have authorized the issuance of $1,000,000 in bonds to provide an adequate water supply.

Red Deer, Alberta, Canada: This municipality with a population of only 2,924 is completing plans for the extension of water and sewage systems at an estimated $55,000 and already has $100,000 invested to cover its post-war program.

Maryland has a Commission of Post-War Reconstruction and Development which decided that the quickest way to get planning out of the talking stage and into the "blueprint" stage was to appropriate one-half million dollars for the work. This fund is now available to cities and counties of the state on a 50-50 basis.

What post-war planning are you doing?

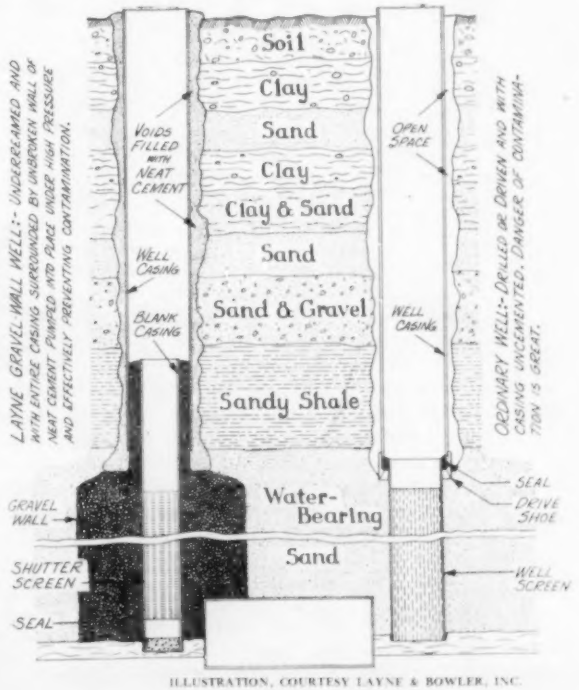
New A.W.W.A. Officers

THE following are the newly elected officers of the American Water Works Association: Leonard N. Thompson, President; Wendell R. LaDue, Vice-President; and William W. Brush, Treasurer. These men were nominated by the Nominating Committee of the Association at its annual meeting held in New York on January 15, 1945. They will take office on July 1, 1945 and serve until the close of the 1946 annual convention or, if no convention is held in the first half of 1946, until July 1, 1946.

Two Types of Water Supply Well

Cross Section Showing Layne Underreamed Gravel-Wall Well with Casing Cemented, and an Ordinary Well with Casing Uncemented

LEFT: *Gravel wall well showing cemented pit casing. The shutter type of screen has the proper size silica gravel pack. This type of well will develop the capacity of the formation.* RIGHT: *Driven type of well with sand screen.*



ILLUSTRATION, COURTESY LAYNE & BOWLER, INC.

THE DAN

Danbury's Parking Meter Plan Studied By Experts

Solved Difficult Traffic Problem; Receipts to Date $122,700.

Danbury's experience with parking meters, as a solution in solving not only the problem on streets in this section, but the traffic as well, has been so successful it has become the subject of a nationwide inquiry by many experts, Mayor William J. disclosed here today.

Facts developed from the city records in a study of parking meters for national publications showed that the installation of an initial 480 Miller manual type multiple-coin parking meters in Danbury, during the administration Judge Martin J. Cunningham mayor, and an additional ... ers nearly two years ago has given to all taxpayers city of Danbury a saving per cent on their taxes of the past two years. given Danbury the ... having one of the lowest labor and parts for ... and repair of meters in the United States of 8.8 cents per meter for four years.

Receipts $12...

From the installation Miller meters, July ... August 1, 1944, the city bury has received $12... revenue from the pennies ... els inserted in the meters motorists for the privilege ... venient and limited parking. ing this same period, the city expended, for labor and parts ... the maintenance and repair of the meters, a total of $2,026.54.

The net profit from the operation of the parking meters made ... tion in the city ... to 9¼ mills

situation to solve the problem of parking and traffic congestion.

In 1936, ... engineers were sent ... on to make a survey ... their findings. The ... more than $10,000. ... engineers recommended de-

This $2,000,000 ... ject was not carried forward, ... cause of opportunity as ... study, ... with his ... was

Judge Cunningham ... not impressed by the ... penny type or the straight nickel ... He wanted a multiple coin meter, so that the motorist would pay only for what he needed, in the way of parking space. After consideration of manual and "automatic" types, the Danbury city administration selected the Miller manual multiple coin meter, and 480 of them were installed. The Miller meter was chosen because of its appearance, its sturdy construction inside and out, its protection against weather and vandalism, its dial visibility from both sides and because the mayor was convinced it would have the lowest maintenance cost of all types examined. Results have justified the administration's conclusions in every particular, the municipal specialists say. Challenges to the legal ... installation ...

Validity Up...

Why MILLERS GOT THE NOD . . .

■ A copy of the December 26, 1944 Danbury News-Times containing this complete story will be sent upon request.

★ Before you decide, do as Judge Cunningham of Danbury did — GET THE FACTS about Miller Meters and be sure. See why Miller Manuals operate for such Low Maintenance . . . why patrolmen like Miller's Visibility . . . why motorists approve of their Multiple-Coin Flexibility that charges the minimum for parking time needed, when wanted, where wanted. Write us today for positive facts.

DUNCAN METER CORP. 5 1¢ **1500 So. Western Ave. Chicago 8, Ill.**

Nickel Parking for the Long Time Shopper — *Penny Parking for the "in-and-outer"*

Public Safety

Why It Burned Analyzing the Fire

As an example of the kind of analysis of a large-loss fire which a fire prevention bureau should make, a study of a half-million-dollar fire showed the following conditions:

First, the building was of excessive area.

Second, there were six elevators and numerous stairways, none of which was adequately enclosed to prevent upward rapid spread of fire.

Third, an old tunnel, permitting entrance to the basement from across the railroad track, gave an ideal draft for any fire in the basement.

Fourth, an excessive storage of cartons, boxes, and other shipping containers was located in the basement.

Fifth, there was a delay in calling the fire department, due in part to an attempt to fight the fire with chemical extinguishers.

Sixth, the fire department was able, through the concentration of 24 pumpers, 5 hose tenders and 5 ladder trucks, to keep the fire from totally involving a 4-story section, which was poorly cut off from the 3-story area, and it also kept the fire from spreading.

After making such an analysis, what should the fire prevention bureau of the city do with it? It should present a good report of this fire to every member of the fire department. It should educate other owners as to the need of correcting similar conditions in their plants. The lessons learned might be made the basis of a special article by a writer for the local Sunday paper.

The basic lesson of this and most other fires is that automatic sprinklers, preferably with supervisory protective signaling service, are the answer to the fire prevention bureau's problem of removing the probability of severe fire losses in the older buildings.

National Board of Fire Underwriters, New York 7, N. Y.

Fighting Fires at Airports

SHORTLY after the war began a special system of fire fighting was developed at the Airplane Crash Fire Fighting School in Jackson, Fla., for the safety of plane passengers, crew, cargo, and the plane. The system has been adopted and used at airports throughout the country. Typical of the system as it is practiced now is the method used at the Air Transport Command Base in Miami.

A Cordox fire fighter in action at the Jacksonville, Fla., airport.

Some 70 men compose the department and work in two shifts, each shift posting two "jump companies" on the runway to watch every plane that lands and leaves. A field telephone connects each company with the Civil Aeronautics Administration control tower, so that emergency warnings may be sent instantly to the spot. There are 10 field phone standbys in the landing area. The "jump companies" handle high-pressure crash wagons with nozzles to blow foggy blankets of water at high pressure into actual or potential fire areas. With these high-pressure hose, they control fires and get crews out of planes before the main equipment arrives. Their job is to save lives.

Backing up the "jump companies" are a 50,000-pound Cardox truck, two more high-pressure wagons, and three pumping engines. On each alert these trucks take stations beside the runways. All are equipped with short-wave radio. The pumpers suck water from the underground "hydrants" placed every 1,000 feet along each runway, and feed the water to the high-pressure units if the fire should last more than a few minutes.

The big Cardox unit carries three tons of carbon dioxide at zero temperature, at 300 pounds pressure. It has a long boom nozzle on its top and a short one on the front bumper. There are two hand lines which can be reeled from the sides of the truck.

The carbon dioxide discharges at 110 degrees below zero Fahrenheit. Behind a cloud of its own making, the truck can close to within a few feet of a blaze and knock it down. As soon as water nozzles have cooled the metal surfaces, trained men cut into the plane to bring out anyone inside. Only after crew and passengers have been rescued do the Cardox, water, and foam teams extinguish the fire completely.

Is Your Municipal Insurance Up to Date?

MODERN fire fighting apparatus is a vast improvement over the old hand pumpers and bucket brigades, but even the most modern equipment will not put out a fire unless operated by trained, efficient men.

Fire insurance contracts, too, have been greatly improved and broadened (although the average cost of Fire Insurance has been reduced by more than 40 percent in the last thirty years) but even so, these contracts will not accomplish their purpose unless intelligently applied.

Because of present high values and replacement costs, it is more important today than ever to make certain that all of your municipal buildings (1) have enough fire insurance to cover present values, and (2) have coverage that is written under the broad form of policy to include loss from wind, explosion, hail, riot, smoke, vehicles and aircraft, in addition to fire.

One of the best "public relations" jobs you can do is to make sure that your clients have modern protection, intelligently applied.

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Sewerage and Sewage Treatment

Check-List for Post-War Sewerage Planning

THE Committee of Water and Sewage Works Development has presented a "Blueprint Now" leaflet in the form of a Sewage Works check-list for the guidance of public works department officials, city engineers and sewage works superintendents who are engaged in preliminary post-war planning. The committee advises that copies of this list be made and distributed to all municipal employees responsible for the collection and treatment works serving the community. When all the lists are filled out a master plan may be readily compiled from these individual lists.

All municipalities where post-war planning is in a preliminary stage or where no action has as yet been taken should use this list as a guide. A copy may be obtained by writing Harry Jordan, Secretary, Committee on Water and Sewage Works Development, Suite 2110, 500 Fifth Ave., New York 18, N. Y.

Post-War Sanitary Engineering

POST-WAR sanitation probably will find one of its most useful activities in the protection of food. This was the opinion of E. Sherman Chase, consulting engineer, Metcalf and Eddy, Boston, Mass., given in a paper delivered at the annual meeting of the American Society of Civil Engineers held recently in New York.

He further stated that water-borne diseases, except for occasional outbreaks, may be considered as being under control. In the protection of public health, the next step for the sanitary engineer will be to furnish further control of food-handling.

The treating of industrial wastes is also important as a post-war sanitary activity. However, these industrial wastes are generally not a direct public health problem. Instead they are esthetic and economic considerations.

The ideal post-war world from the sanitary engineer's standpoint is one in which there would be no flies, no mosquitoes, and no rats, according to Mr. Chase. He indicated that the mechanical engineer, rather than the sanitary engineer, probably did more to eliminate flies when he supplanted the horse by the automobile than the sanitary engineer has done.

There are sharply contrasting opinions as to the best method of financing post-war sanitation projects. On the one hand the American Society of Civil Engineers has advocated encouraging these projects by a federal subsidy while the Water and Sewage Works Development Committee has advocated that cities finance these improvements unaided. This is all the more interesting, Mr. Chase pointed out, since six of the nine men who were members of the latter committee were also members of the A. S. C. E.

"It is my personal feeling," said Mr. Chase, "that with the federal debt skyrocketing to increasingly greater heights and with the financial situation of the cities better than ever before, it scarcely seems proper for these same cities to come to Washington, hat in hand like an affluent beggar asking for help."

Hand-book on Hazards of Sewerage Systems

A MANUAL on "Occupational Hazards in the Operation of Sewage Works" has been reeleased by the Committee on Sewage Works Practice of the Federation of Sewage Works Associations and may be obtained on payment of fifty cents per copy to W. H. Wisely, Executive Secretary of the Federation, Illinois Bldg., Champaign, Ill. This is the first of a series of manuals for the guidance of operators in this field. Its preparation was under the direction of LeRoy W. Van Kleeck, Chairman of the Sub-Committee on Occupational Hazards.

Injuries and fatalities are all too frequent in this field. The manual is designed to give the operator an awareness of the various hazards, their causes and ways of prevention.

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WHEN WEATHER PERMITS IN ORDER RECEIVED

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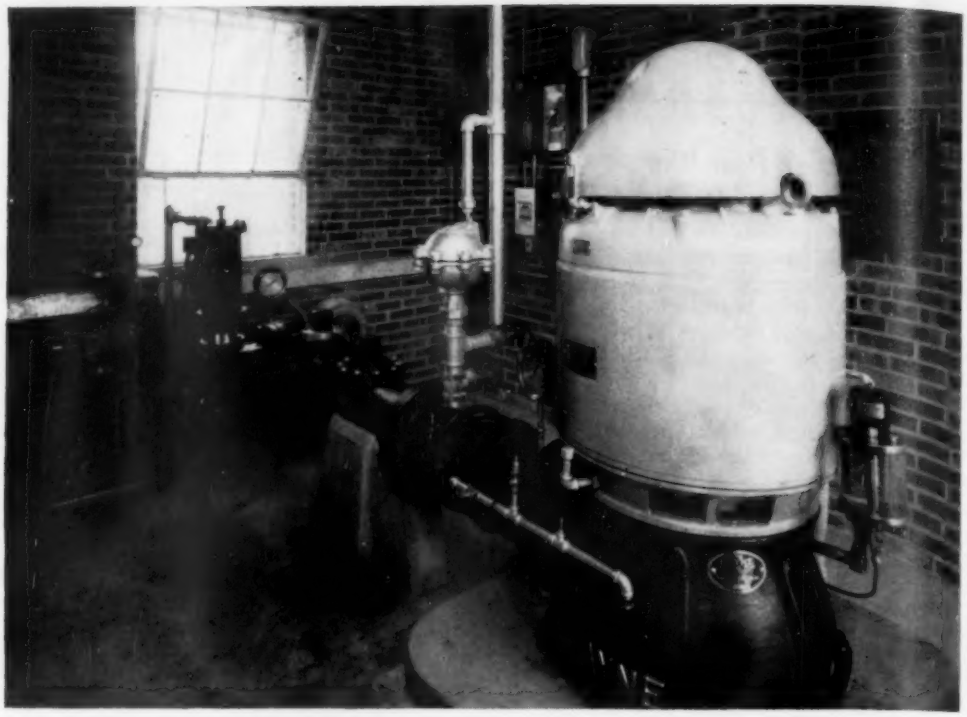
At Anderson, Indiana, R. R. Baxter, Superintendent of the Sewage Treatment Works, conducted an experiment with tomato seed to determine the growth to be expected from various proportions of sludge and dirt. The results of this experiment were used as the basis of an advertisement (the above is a much reduced replica) which was used to promote successfully the sale of sludge as fertilizer.



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The men who build Layne Well Water Systems like to turn out a neat job of pump, motor and control installation. But it is the engineers in the factory who are responsible for their extra high overall efficiency. First, they considered all of the well conditions—diameter, depth, static water level, capacity, drawdown and total head. Then the size and stages of the pumps, proper diameter and length of column pipe and line shaft and thus determined the right horse power to deliver the required amount of water into the user's system.

These same engineers created the pump design, specified the kind and size of bearings and saw that all parts were precision built of the finest quality materials. The result is a highly efficient, complete water system that will pay extra dividends in long life, low operation cost and freedom from mechanical faults.

Layne installed wells and Layne vertical turbine pumps are fully recognized by the most eminent engineers as being the finest in quality and the most efficient ever built. For over a half century, such a reputation has been maintained.

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WELL WATER SYSTEMS
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Public Health

Superior Health Determines Outcome of Campaign

GUADALCANAL:—This campaign is extraordinary in that, of all major campaigns in the Pacific theatre, this one was without doubt affected most markedly by medical factors. It will be shown that although both sides were afflicted and weakened by disease, the Japanese force suffered far more from this source than we did. In view of the closeness of the decision in some of the engagements, the narrow margin by which enemy recapture of the airfield was averted, and the near success of some of the enemy land attacks, it might well be that had the enemy been able to keep his forces up to strength and in good physical condition, the narrow margin of failure would have been converted into success, and our troops would have lost the airfield in spite of ultimate naval supremacy in the area.

In our opinion two-thirds of the Japanese who met their demise on Guadalcanal died of disease. No known estimate of enemy battle casualties exceeds 10,000, and in all probability the correct figure is less.

(Extracted from a U. S. Navy report of operations in the Solomons.)

Bactericidal Action of Chlorine and Chloramines

THE relative resistances of Escherichia coli and Eberthella typhosa to chlorine and chloramines at a variable pH have been the subject of studies conducted by Elsie Watti, bacteriologist, and C. T. Butterfield, principal bacteriologist of the United States Public Health Service.* The results of these studies indicate that at pH 6.5 and 7.0 typhosa strains are consistently more resistant than coli strains; at pH 7.8 coli strains are more resistant with concentrations of free chlorine in excess of about 0.03 ppm; and at pH 8.5 or above all strains of Esch. coli tested were consistently as resistant and usually much more resistant to free chlorine than any Eber. typhosa strains. Consequently, while the range of probable error does not permit a definite allocation of the pH, between 7.0 and 8.5 where the "change-over" in sensitivity occurs, the consistency of the results at pH 6.5 and 7.0 and at pH 8.5 or above leaves no doubt as to the existence of a "change-over." This "change-over" in sensitivity with increasing pH was marked by the condition that Esch. coli required greater increases in chlorine concentration than Eber. typhosa to produce equivalent kills. Although factual information is not available to support the theory, it would seem that the cells of Eber. typhosa might become more sensitive to free chlorine with increasing pH, due to some function of the capsular substance. Perhaps the capsular substance is less permeable to chlorine at lower pH values. If this were true then the more heavily encapsulated Eber. typhosa would be more resistant under such conditions (low pH values).

The pronounced difference in bactericidal properties of chlorine and chloramine are noticeable. At normal pH values approximately 40 times more residual chlorine as chloramine was required to produce a 100 percent kill of Esch. coli in the same time interval as it took with free chlorine. For Eber. typhosa this ratio was about 25 to 1.

At pH 9.5 chloramine required approximately 100 fold the period for free chlorine.

* Public Health Reports, 59. December 29, 1944. U. S. Public Health Service, Washington, D. C., pp. 1661-1671.

Home Water Disinfection

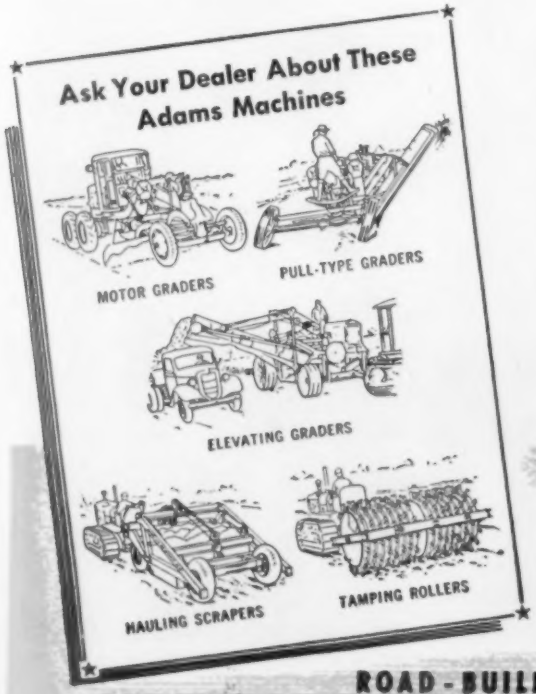
ACCORDING to Sanitary Engineering News, published by Don E. Bloodgood of Purdue University, there are several simple methods of disinfecting water. They are:

1. *Boil* for two minutes.
2. *Chloride of lime* used in the proportion of 1 teaspoon to 1 quart of water makes a stock solution, 1 teaspoon of which disinfects 1 gallon of water.
3. *Zonite* may be used in proportions of 10 drops per gallon of water.
4. *Liquid Bleaches.* A solution of 5 percent chlorine bleach—2 drops to a gallon of water.
5. *Tincture of Iodine*—4 drops to a gallon of water.

Healthful Food and Exercise

COURTESY OF VICTORY GARDEN INSTITUTE, NEW YORK

Municipalities should do everything possible to promote Victory gardens this summer. Food supplies must stretch farther than ever before. Here is a way not only to aid the war effort but to get healthful food and exercise as well.



A WIDE, flexible range of operating speeds—ability to provide the *right* working speed for *every* construction and maintenance job—that's one of the important time-saving, money-saving features of Adams Motor Graders. Adams 8 forward speeds permit operator to select speed best suited for every type of operation at fastest practical rate—with transport speeds up to 21 m.p.h. for fast moving from job to job.

Many outstanding advantages combine to make Adams Motor Graders your best buy—rugged strength, rigidity, balanced weight distribution, ease and economy of operation, quick adaptability to all kinds of cuts. Discuss these advantages with your local Adams dealer.

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Streets and Street Maintenance

Proposed Fort Worth-Dallas Expressway—Interregional Highway Link

THE two cities of Dallas and Fort Worth located 32 miles apart in the northeastern part of Texas form the hubs from which radiate the main travel arteries connecting them not only with the rest of the state but also with the rest of the Nation. It follows naturally that the route between these two points handles a real traffic load, one way beyond its designed capacity. To find the best solution to this problem extensive studies have been made by the State Highway Department and by city and county officials and their planning commissions. These studies which were begun in 1941 formed part of the groundwork for the latest report which was prepared for the Texas State Highway Department by the consulting firm of Parsons, Brinckerhoff, Hogan & Macdonald of New York City.

The report recommends an expressway between these two municipalities along the general path of U. S. 80 which is one of the principal east-west highways across the United States. The expressway would form a link in the system of Interregional Highways if the proposal is accepted.

In 1941 traffic on U. S. 80 reached its peak and right now traffic during peak hours causes considerable congestion in both Dallas and Fort Worth. The proposed improvement is therefore a necessary step toward alleviating such conditions as will arise after the war.

This expressway proposal is based upon investigation of the present route and other proposed routes to connect the two cities. They found the present route congested especially during peak hours. This condition was further intensified by numerous traffic lights, interference from cross traffic and pedestrian crossings and by left-turning movements of traffic.

To determine the route which would best suit the future traffic need of the cities and regions an origin and destination survey was conducted. With the information thus obtained a route was selected, interchange points provided for convenient collection and delivery of traffic, and provision made for adequate capacity.

The firm also studied other possible routes to make certain that the proposal as finally worked out would possess certain fundamental advantages over any other possible route. The proposal provides for free and uninterrupted traffic movement by separating the opposing traffic lanes by a center mall, by separating grades at intersections with other highways, and by limiting access except at carefully selected intervals where adequate entrances and exits would be provided.

The proposal was designed to provide stage construction. The report urged that the route and the general character of the whole program be determined now so that the project will be properly coordinated in its entirety.

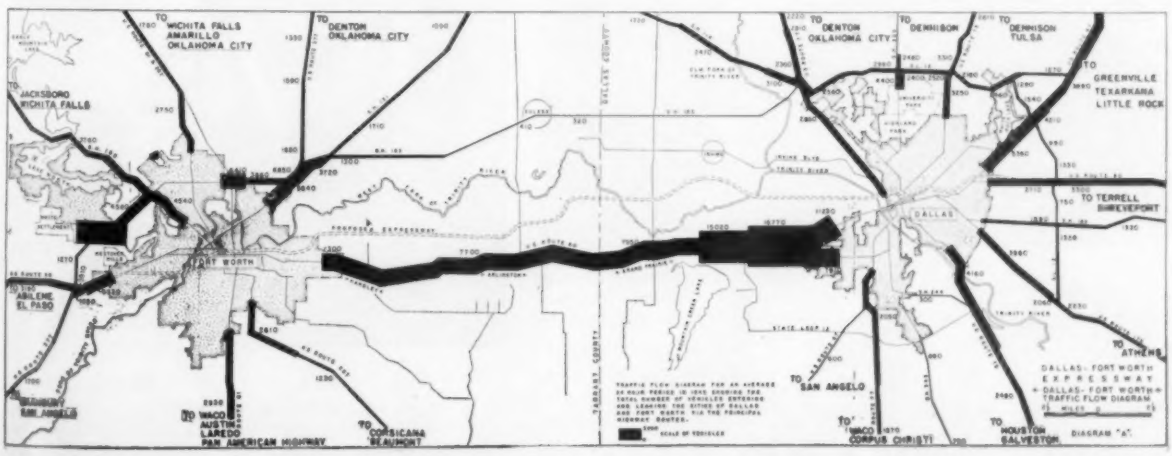
Vermont to Facilitate Post-War Street Work

IN a recent Vermont State Highway Report is set forth a unique but practical post-war plan to have a supply of road machinery to fill its own needs as well as those of the many Vermont towns which have an inadequate supply of such equipment.

Realizing that both construction and maintenance work can be done with more speed and efficiency and at a lower cost with adequate road machinery, the Vermont State Highway Department hopes after the war to install in each of its districts several power shovels, bulldozers, and power graders. These will be available to towns at a minimum rental charge for work on State Aid and Town Highways.

New Street in Miami

ACCORDING to Earle M. Rader, County Engineer of Dade County, Fla., in order to replace an old road which was closed to construct an Airport, the U. S. Army has rebuilt LeJeune Road between W. Flagler Street and N. W. South River Drive in Miami. This construction entailed replacing the 18-foot oiled road with a new 24-foot pavement consisting of a 6-inch compacted lime rock base, topped by a wearing surface of 1½ inches of asphaltic concrete with a 10-foot stabilized shoulder on each side. Two bridges also have been widened and rebuilt along this route.



Double dotted lines indicate the proposed route of an expressway connecting Dallas and Fort Worth. This traffic-flow diagram shows the number of vehicles entering and leaving these two cities on the principal highway routes which fan out from them and connect them to other major cities within the state, the nation, and even the Pan American highway. The numbers beside each highway indicate the average number of vehicles which use the route in any given 24-hour period and the heaviness of the line suggests the amount of traffic on each route.

THE YEARS TELL THE

Story of their life

WHEN you buy a "Caterpillar" Diesel Engine,* it won't take you long to discover the size of the load it can handle. Or the amount of machinery it can drive. Or the smoothness with which it runs. Or the little attention — and practically no adjustments — it requires. Or the amazing amount of power it can wring out of a gallon of low-grade, low-cost fuel.

For these things can be measured. Or seen. Or figured in economical dollars and cents.

But to estimate its maximum serviceable life would ordinarily be a matter of waiting — for years. Today, however, you can judge pretty closely by the records of plenty of other engines just like it . . . work engines that have "been through the mill" and have many thousands of hours of actual running behind them. Cited here are just a few of such records.

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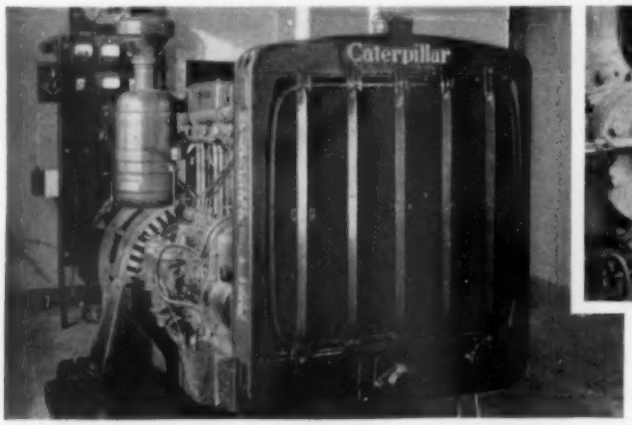
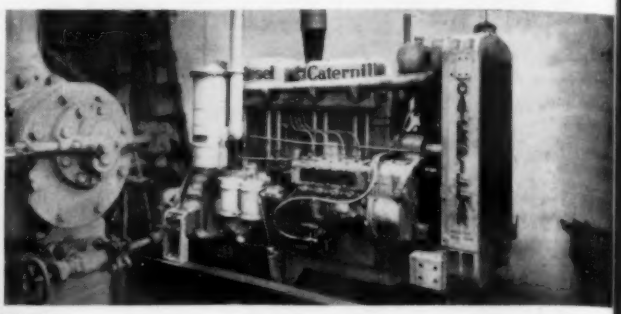


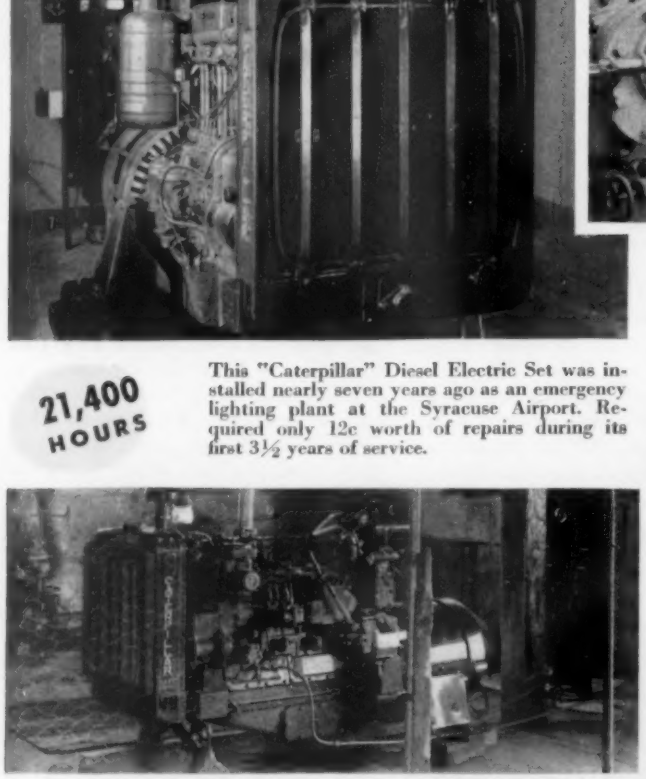
21,400 HOURS

This "Caterpillar" Diesel Electric Set was installed nearly seven years ago as an emergency lighting plant at the Syracuse Airport. Required only 12c worth of repairs during its first 3½ years of service.



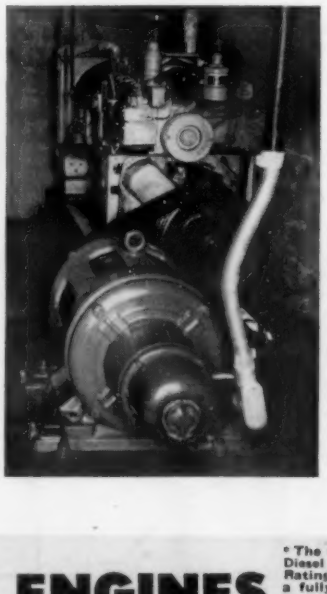
65,000 HOURS

A "granddaddy" among "Caterpillar" Diesels, this D7700 drives an ammonia compressor used in cooling two rooms for the A. J. Krecker Co., Chicago. Record includes 9000 hours of almost continuous running with little or no maintenance expense.



34,400 HOURS

This "Caterpillar" Diesel D4400 powering electric generator was installed in 1940. Operates 24 hours a day furnishing light and power for the town of Haswell, Colo.



32,000 HOURS

This record was made by this "Caterpillar" Diesel D4400 in exactly 5½ years, producing power for incubators, battery brooders, water pumps, lights, etc., for the Bolton Farms Hatchery, Schoeneck, Pa. Runs 24 hours a day, seven days a week, and is seldom shut down more than once in two weeks.

CATERPILLAR DIESEL ENGINES

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* The horsepower of "Caterpillar" Diesel Engines is ALL WORKPOWER. Ratings show sustained output of a fully equipped engine—not the momentary peak performance of a power-plant stripped of fan, pumps or other necessary accessories.

TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

Vol. LX, No. 3 The American City March, 1945

Helping the Veteran to Find His Place in Post-War America

Reintegrating veterans and civilians in a new community pattern

By BRIG. GEN. FRANK T. HINES
Administrator of Veterans' Affairs
Administrator of Retraining and Reemployment

COMMUNITY organization to guide and inform returning veterans is an important part of the government's program for the reintegration of ex-service personnel into civilian life.

Many of our returning veterans will have been out of the country for considerable lengths of time, and all of them will have been more or less out of touch with community life since they entered the armed services. Even if nothing had changed at home, they would feel somewhat out of place for a while after they left service.

But things at home are not at all as they were before the Japanese descended on Pearl Harbor on December 7, 1941. In a very short time our national manners and habits have undergone tremendous changes — changes which for a while may easily be as foreign to our returning veterans as was their first week in North Africa, or on a South Pacific Island. For instance, many of the boys who grew up in your town have heard of gasoline rationing in only the vaguest terms, and have no notion that a ration coupon is needed to buy a pair of shoes.

Let us ignore the more important changes that war has brought about in the relationships of life and the psychological differences it has wrought in all of us. There are minor strangenesses that have resulted from the mere fact that civilians and military personnel have been living different kinds of lives in different places.

This alone is sufficient to indicate that many adjustments are going to be necessary when the war is over. And not all of these adjustments are going to be on the part of the veterans. True they will have to recognize our new ways of life and accept them. By that same token we will have to recognize changes that war and separation have made in them and in turn accept them.

In passing the "G.I. Bill of Rights," Congress has tried to foresee the needs of the returning veteran and to give him a fair start in civilian life. But the application of these laws on the home-town level is a community affair and calls for wise and sympathetic support by all local agencies and by City Hall itself. The teamwork and high goal of all those serving veterans' needs will determine the success of this legislation.

A need not stressed by General Hines in the accompanying article, and one which may well play a major role in the harmonious adjustment of veterans to civilian life, is that of a community meeting place with facilities for congenial recreation to take up slack-time hours. Many men accustomed for years to close contact with other men will welcome a central gathering place where experiences can be exchanged, where they can engage naturally in sports and games, where they can follow through some hobby with others of like taste, and especially where they may meet other people in the town on common community ground. Such a center might well be the community's war memorial where those very ideals for which the war is being fought may function in a practical manner.

See also *Veterans Are Coming Home—Now* by Phillips Bradley, THE AMERICAN CITY, January 1945.

These things will have to take place at the local level. It is the people, families and relatives, in the home towns and the veterans who return to those towns who will have to bear with each other—accepting the grain and rejecting the chaff on both sides.

Pattern of Veteran Laws

In providing for the return of the veteran, Congress has made a generous attempt to foresee his needs and give him a start in civilian life that will make it possible for him to compete with those who did not take time out to go off to war. All legislation for veterans is directed toward this end; and, since the veteran will return to his home town, it must be weighed at the community level.

What is the general pattern of veteran laws? Let us look at them. Some of our veterans were taken directly into service from their class rooms, others had actually left school and were qualifying in trades, a small percentage had established their own businesses, or were in the professions. They were taken into the services without much opportunity to make provision for their return.

School or a Job

Looking at this picture, Congress has provided that any veteran who meets the requirements, and wants it, may go back to school for a year at the expense of the government. If he can prove that his education suffered as a result of the war, or if he was under 25 years of age at the time he entered service, he may have additional schooling for as long as he was in service—but not to exceed four years.

If he doesn't want to go to school but is interested in learning a trade or

mechanical skill, he may go to a vocational school or undertake apprenticeship or on-the-job training. The government will pay for this at the same rate it would if he were in school.

Perhaps his one interest is to get a job or set himself up in business. A special job placement service has been established in the United States Employment Service to see that he gets the job for which he is best qualified. And if he wants his own business and has demonstrated ability sufficient to indicate a reasonable chance of success, he may get the government, through the Veterans Administration, to guarantee a portion of a loan for this purpose. The government will not lend the money, but it will guarantee half of a business loan, up to the allowed maximum of $2,000. The loan is actually negotiated with a bank, other lending agency or an individual —and must be repaid.

There may even yet be some slip-up in this plan. For some reason the veteran may not be able to land a job without delay, or having acquired a business may not immediately begin showing a profit. Should this happen, the jobless veteran may draw a Readjustment Allowance of $20 a week for a maximum of 52 weeks. And the man with his own business may collect the difference between what he earns and $100 a month.

Home or Farm

But there are other ambitions of the veteran which may have been thwarted. He may be hopeful of owning a home of his own or of becoming an independent farmer. Again the government has provided, under specified conditions, for the Veterans Administration to guarantee a portion of loans to be devoted to these purposes. But the veteran should understand these are loans and not gifts.

All of these benefits, which are granted under the so-called G.I. Bill of Rights, are definitely designed to work their way back to the community level —to bring the veteran home a better citizen and a more valuable member of the community than he was before he entered service.

The government cannot make this program work at the home-town level. Its program must, of necessity, be designed on a broad pattern to reach the greatest possible number of veterans. Our veterans have not been fighting for the government, as represented by the various agencies in Washington, but rather for you and me—for all of us in the communities and home-towns from which they have come. We are the government, and it is up to us to make the federal program work. Jobs are in the home-towns, so are the homes and businesses; the farms are nearby, while schools are not far removed and generally have deep roots in the community.

Local Organization Essential

It will be up to the communities under competent leadership to complete the reabsorption of the veterans as they return. This is not a case of cheering when the flag passes, or of bubbling sympathy. It will require careful organization and forethought to avoid the confusion and chaos that would result from overlapping services tended by uninstructed personnel.

In all of this, the city fathers should play an important part. In most of our cities the officials have been elected because the people have faith in them and look to them for leadership.

The government has taken the lead in organizing for service to the veteran when he returns. It has established the Retraining and Reemployment Administration to coordinate the work of all agencies, except the Veterans Administration, and the Veterans Administration is working closely with this newer organization.

Under this national organization there have been set up state committees following very nearly the same pattern in their composition. The membership is made up of representatives of the Veterans Administration, Selective Service System and the War Manpower Commission.

These state organizations are already giving every possible assistance to the formation of local committees and organizations to carry on informational work at the local level.

Since no two communities are exactly alike, the veterans' centers in no two have the same pattern. In many instances the start has been made by officials in City Hall, in others the initiative has been taken by older veterans' organizations, or by the Chamber of Commerce or other civic-minded groups. Whatever their origin, their purposes must be well established and the operating personnel trained to understand the laws, rights and benefits granted veterans.

Service Committee's Functions

In most communities the types of organizations represented on the Veterans' Service Committee are six, which working together represent the more civic-minded and farseeing groups in the community. They are:

1. Federal agencies
2. State veteran service agencies
3. Veterans' organizations
4. Town or city representatives of government, health and educational groups
5. Industrial, business, labor and other civic groups
6. The local chapter of the American Red Cross

The main purpose of the Veteran's Service Committee as representative of these groups is first to see that individual organizations offering services to veterans do not duplicate their efforts. The Committee's other duties:

(a) Maintain liaison with outside organizations and report their findings in their locality

(b) Act as a clearing house for all local activities and see that duplication is eliminated

(c) Help individual groups with their planning

(d) Supply information and see that those operating informational services are thoroughly acquainted with the benefits to veterans

(e) Keep up community interest.

This last may be a most important activity as the need for veteran service committees may continue for years.

A Few Musts

A most important must for an information station is a thoroughly instructed staff. Next in importance come:

1. A convenient location
2. Ample space
3. Conference rooms where talks may be held in private
4. Sufficient filing space to keep recorded information where it will be immediately available

In completing such an organization, it will be well for most communities to keep in mind that many war workers will be returning from crowded and unnatural conditions of work in far places at about the same time the greatest number of veterans are probably coming home. It would be well to organize on the basis of providing information and guidance to these citizens as well as to those discharged from the armed forces.

Many of them will be quite as much strangers at home as if they had been abroad. The country boy from deep in the Blue Ridge who has been fighting his way through the crowds and confusion of congested Detroit for several years is going to be rather at loose ends and need some help when he returns to his mountain fireside—and he will be part of the problem.

One suggestion, please: *In setting up such a service it would be well to keep in mind that it is information and help these men will be looking for —not sympathy. Keep your tears until you get home at night.*

The even distribution of water into this No. 4 settling basin at Kansas City, Kan., is assured by first allowing the water to go into a flume the full length of the basin. The water enters the basin proper from the flume through the entrance ports. Notice how the flume at the right is slatted or baffled.

Kansas City, Kan., Remodels Settling Basins

Redesigned settling basins distribute water evenly and yield increased efficiency and capacity

By ELMER CHAPMAN
Superintendent
Quindaro Power Station
Kansas City, Kan.

WATER from one of the most turbid rivers in the United States serves as the source of our raw water supply. Naturally our turbidities are high, reaching as much as 23,000 ppm, and the job that the sedimentation basins do is a major operation in our water purification process. When we found them failing to perform in a satisfactory manner, we decided that something should be done to increase their efficiency and at the same time the effectiveness of the plant as a whole. Here is the story of how we have met the problem temporarily, until materials and labor again become available for more permanent and effective repairs.

Kansas City, Kan., located on the Missouri River at the mouth of the Kansas River, has a population of 125,000 and provides water to an estimated 165,000 people. Our water treatment plant, the Quindaro Station, is located north of the city with two intake stations 400 feet apart located on the south bank of the river. When the demand for water increased in 1943, bringing serious problems of supply, we realized that we would be faced with even greater difficulties in 1944 and 1945. At that time the demand on the filters was considerably above their rated capacity and to take on a greater load would, we knew, require radical changes in our settling basins in order to deliver an improved quality of water to the filters. How this was accomplished may be clearer if we first give a brief description of the sizes and capacities of our settling basins, filters, clearwell storage, pumping demands and turbidities:

SETTLING BASINS

Units	*Width*	*Length*	*Depth*	*Capacity mg*
No. 1	29′	194′	24′	3.00
No. 2	201	192 avg.	21.5	6.25
No. 3	199	304	23.7	10.75
No. 4	200	233	23.6	8.25
No. 5	143	257	20.6	4.50

RAPID SAND FILTERS

5—2¾ mgd each	13.75 mgd
9—1⅜ mgd each	12.38
Total, 14 filters	26.13 mgd

PUMPAGE AND DISTRIBUTION DEMANDS (1943)

Pumpage—mg			*Consumption—mg*
Avg. Day	Max. Day	Max. Hour	Max. Hour
22.35	29.84	33.5	40.5

Operation Before Alteration

Before the alterations were made water was pumped by six DeLaval low duty pumps and applied to the three parallel units of the No. 1 basin by pipes entering at the east end flowing over a free weir at the west end, a distance of 194 feet. These units are roughing basins and only precipitate the sand and heavy particles, and are flushed constantly. Any one or even two of these units may be removed from service for cleaning and inspection. However, if two of these units are out of service at one time some heavier particles will be carried over to the next basin.

The water from No. 1 basin flows in a flume along the south side of No. 2 basin. It enters No. 2 plain sedimentation basin over a weir designed to distribute the water uniformly across the entire width of the basin. At the north end of the basin the water flows over a free falling weir to a collecting flume, which discharges into a mixing chamber. This mixing chamber is a flume with "around-the-end" baffles for mixing, consisting of two passages 22 feet wide and 175 feet long.

As water enters the mixing chamber, lime and alum solutions are introduced. Prechlorination is applied by Wallace & Tiernan chlorinators. (See diagram of plant before remodeling.) The coagulated water from the mixing chamber flows over a submerged weir into No. 3 basin and is collected at the opposite end over a submerged weir to a flume installed inside the basin wall. The water from No. 3 basin flows along t... flume into a similar flume

in No. 4 basin where it is distributed over a submerged weir across the full width of No. 4 basin. (See insert of the accompanying diagrams.) The water in No. 4 passes over a submerged weir at the outlet end into a shallow flume. This flume has two right angle turns. Water from it flows over a submerged weir to No. 5 basin. The water in No. 5 basin is collected by a submerged weir and flume connecting to the filter influent piping. When necessary, activated carbon is applied in the flume between the No. 4 and No. 5 basins.

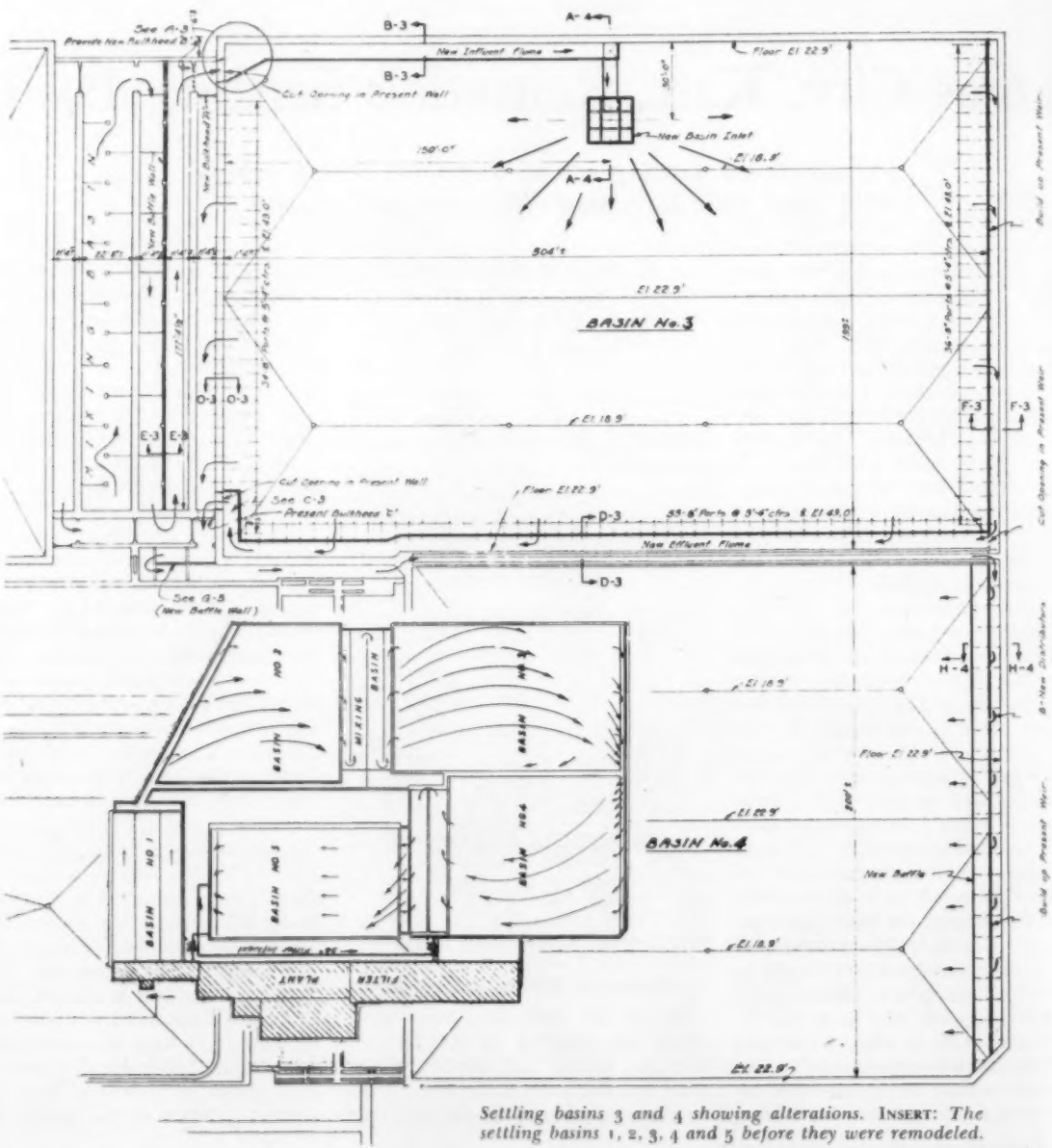
The defective distribution and collection of water in Nos. 3, 4, and 5 basins will now be examined and an explanation of the methods employed to correct them will be given.

The difficulties in No. 3 basin were caused by the water whirling in the basin. The flow of water in the inlet flume was almost at a right angle to the desired direction of flow in the basins, and water flowing over the submerged weir also entered the basins at an angle. These two features together caused a circular motion of the entire body of water, and, to make the matter worse, the method of collecting the water at the outlet of this basin only increased the whirling action. Water at the outlet end of the basin flowed over the submerged weir into the flume suspended on the inside of the wall of the basin and the direction of flow in this flume was nearly tangent to and in the same direction as the circular movement of the water in the basin, which also resulted in a very unequal distribution of flow over the weir. This churning motion of the water caused floc to be carried over the weir and into the flume at the outlet end. It was evident that the circular movement of water below the weir was deflected upward when contacting the side wall of the basin, and when certain rates prevailed some movement of the water toward the inlet weir was observed.

The conditions that existed in Nos. 4 and 5 basins were similar to those in No. 3, but, fortunately, they were not as severe.

The installation of baffles in the influent weir flumes was considered but they would only function properly at a constant rate of flow and would not remedy the defective action of the submerged effluent weirs.

With the changes that were finally



Settling basins 3 and 4 showing alterations. INSERT: *The settling basins 1, 2, 3, 4 and 5 before they were remodeled.*

Basin No. 3 under construction. Notice the distribution tower or inlet on the right.

decided upon, however, the flow of water in No. 3 basin was completely changed. The second pass of the mixing chamber was divided into two sections, one-half being used as a flume to supply water to No. 3 basin (see diagram). A submerged duct of wood construction from the flume in the mixing chamber to a distributing tower in the basin was built. This distributing tower was located adjacent to the side wall midway between the old inlet and outlet flumes.

Distribution in Basin No. 3

Water enters this tower at the bottom and flows vertically to the outlet ports. These ports are graduated in size and position to absorb the velocity head. Water from this tower radiates from three sides towards the three collecting flumes. The former inlet and outlet weirs of this basin were raised above the old water level to provide outlet flumes. A flume of wood construction was installed along the wall inside the basin connecting these two flumes. Ports were cut in these three flumes along their entire length. The ports are 6 feet apart, 8 inches in diameter, and located 2 feet below the basin water level. They are provided with adjustable covers to regulate the flow by varying the size of the ports as desired.

The collecting flumes now have a lineal length of 696 feet. The former weir was 199 feet long. These changes have eliminated the whirling action of the water in the basin. While the length of travel of the water has been greatly reduced, this has been more than compensated for by the decrease in velocity in the basin and through collecting ports.

No change was made in the direction of flow in No. 4 basin, but the weir on the inlet flume was closed and eight vertical ports, 5 feet 10 inches by 1 foot 2 inches spaced 22 feet apart, were provided to admit the water into this basin. Adjustable vanes were installed at these ports for the purpose of deflecting the proper proportion of the total flow in the flume through each port. Also a wooden baffle made of 1 by 8 by 7-inch boards with staggered openings is suspended across the width of the basin in front of the ports for the purpose of eliminating the jet action of the water leaving the inlet ports.

Flow to No. 5 Smoothed

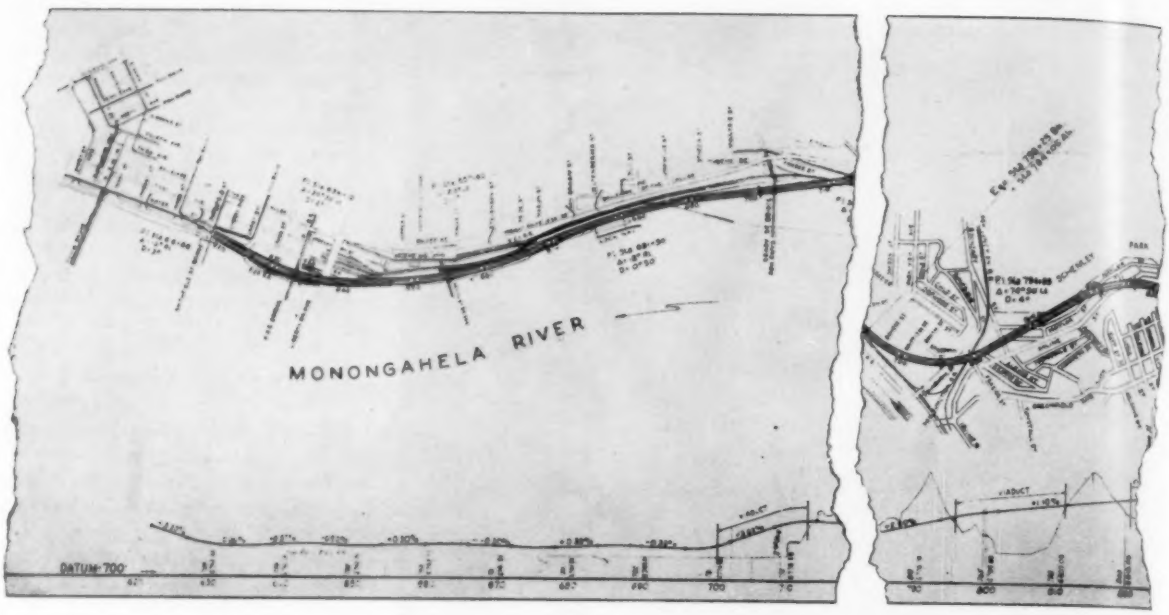
The outlet water from No. 4 basin now flows in a straight line directly into No. 5 basin across its entire width. This was the method used to eliminate the difficulty in No. 5.

Secondary coagulation and activated carbon can now be applied in the flume which connects the No. 3 and 4 basins.

These changes, which were planned and installed in collaboration with the consulting engineering firm of Burns & McDonnell of Kansas City, Mo., have improved the quality of water supplied to the filter, but they are temporary expedients and far from ideal.

Plans and specifications are now being prepared for the enlargement and modernization of the water plant consisting of clarifiers, flocculators, a new chemical house, additional filters, and increased clearwell capacity, at an anticipated cost of approximately $1,400,000.

The collecting and connecting flume for the No. 3 basin runs the full length of the picture. Water from No. 3 passes through this into No. 4 basin shown on page 77.



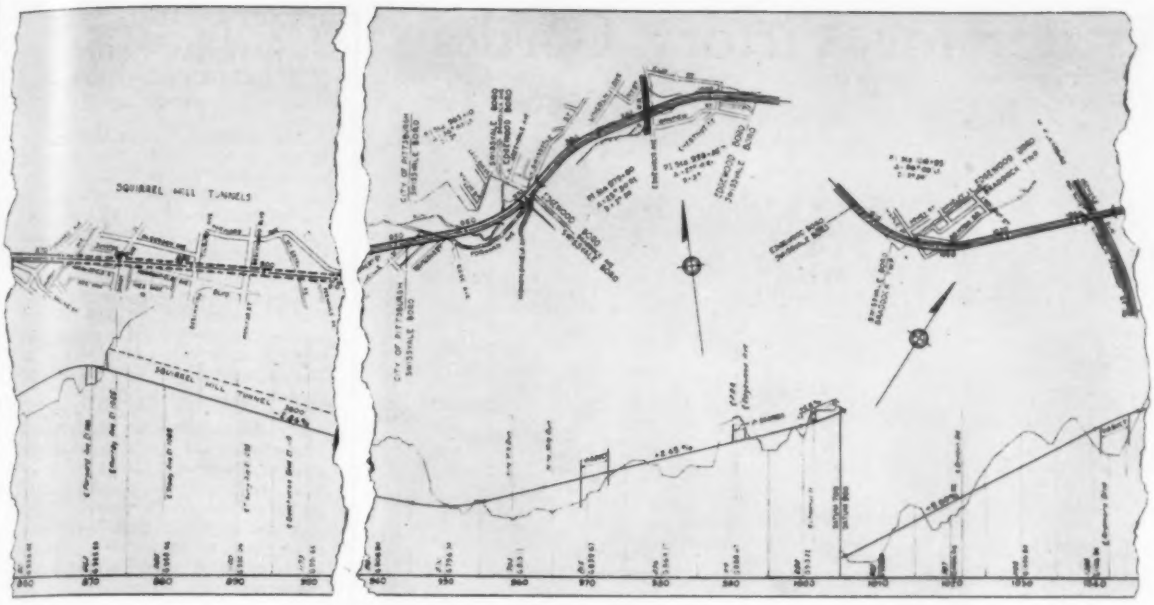
Street Planning Progress in Philadelphia and Pittsburgh

Constructive post-war programs, ready to go, show cooperation between city, state, and federal governments

Map of Philadelphia on which the streets slated for post-war improvement are marked with heavy black lines.

POST-WAR street construction in Pennsylvania's important cities of Pittsburgh and Philadelphia will be a cooperative venture as far as the solving of certain knotty traffic problems is concerned, C. H. Buckius, Chief Engineer, and John U. Shayer, Secretary, Pennsylvania Department of Highways, disclosed recently.

Pittsburgh's Golden Triangle, the belt line surrounding this rich city's business district, figures heavily in the plans. In this program, the state of Pennsylvania, with financial assistance from the federal government, has entered into a contract for engineering services to complete surveys, plans, and specifications for an express highway designated as the Penn-Lincoln Parkway. This proposed project is to begin at the southeast corner of the Golden Triangle, will extend eastward, parallel to the northern bank of the Monongahela River, under a residential district via a tunnel, and eventually northeast-



The Pennsylvania-Lincoln Parkway, a major portion of which will run through Pittsburgh, is scheduled for post-war construction. The illustration at the top of these two pages indicates only portions of this Parkway project.

ward through Edgewood, Swissvale, and Wilkinsburg Boroughs to U. S. 30 (Lincoln Highway), and finally to U. S. 22 (William Penn Highway).

The western section of this parkway, 4.7 miles long from the Golden Triangle to the tunnel, will consist of a 6-lane divided highway, and the eastern section, 4.4 miles long, of a 4-lane divided pavement. The parkway under the residential area will consist of twin 2-lane tunnels about 4,225 feet long.

Present plans are to construct this parkway as a limited-access facility with access only at six interchange points. The predicted *daily* traffic for a year that the parkway should carry varies between 49,000 vehicles at the western terminus and 9,000 vehicles over the short section at the eastern end.

Michael Baker, consulting engineer, Rochester, Pa., has the contract for the survey, plans, and specifications for this project. The total estimated cost is $25,000,000 including property damage.

In Philadelphia, the Pennsylvania Department of Highways contemplates an extensive 5-year program. At present 28 projects are being considered for improvement and plans are being completed with the assistance of the city of Philadelphia.

During the past three years Philadelphia's streets have been considerably changed to adapt them to their wartime load. Chief among these have been extensive additions to the Industrial Highway between Chester and Philadelphia, and projects in the southern part of the city at a total cost of $4,387,181 exclusive of property damage. The completion of these projects has provided direct access to the Philadelphia Navy Yard at League Island as well as to various war industries along the Delaware River between Chester and Philadelphia.

Pittsburgh also has seen some important street projects carried through to meet the wartime need. With financial assistance from the Public Roads Administration of FWA, the Highway Department completed as an access project in 1944 a section of the Ohio River Boulevard in Lettsdale Borough. This project is 1.3 miles in length, and is a 4-lane divided concrete pavement.

The state expects to advertise soon for the extension of the Ohio River Boulevard as an access project in this same area. This will be a 4-lane divided concrete pavement, 2.27 miles in length. The estimated cost including property damage will be $1,435,000.

The completion of these two projects will expedite the movement of war materials, equipment, and employees to and from the industrial plants along the east bank of the Ohio River.

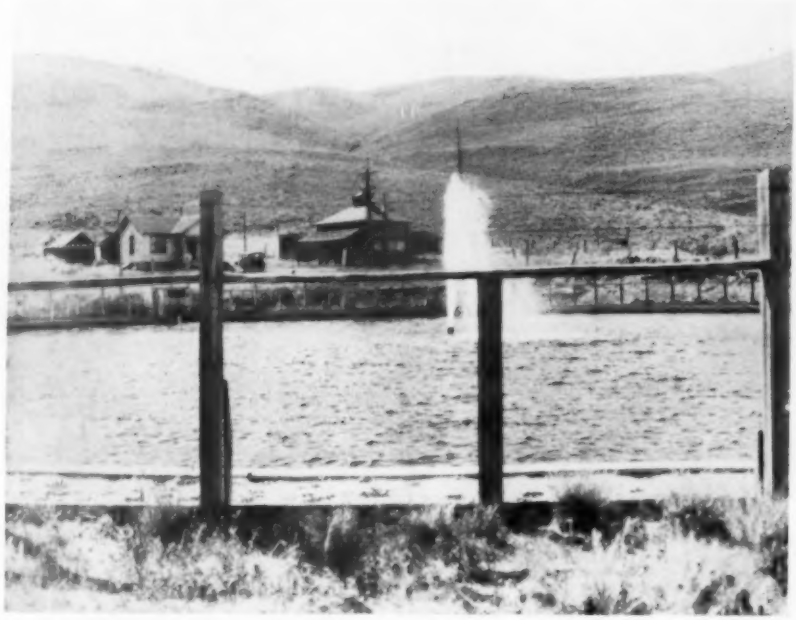
To Correct Erosion Along New York's 120-Mile Coastline

THE need for state action in checking erosion and devastation by storm along the shores and beaches of the state of New York is emphasized in a Report to the Legislature of the State of New York, dated February 15, 1945.* The Atlantic shoreline of New York state consists of 120 miles of Long Island coastline, an area of great economic and recreational value to the people of the state. The rapid erosion of the beaches constitutes a threat not only to the recreational areas but to the navigable inland bays as well, which are among the finest and most productive shellfish grounds in the world and the source of large quantities now sent to the New York market, including the famous Blue Point oysters. Here also are found large quantities of duck.

Continual thinning of natural coastal barriers and devastation from the hurricanes of 1938 and 1944 have emphasized the need for protective remedies to meet the threat. The inability of any local group or community to cope with the physical and financial problems involved, and the necessity of approaching the problem from the point of view of the whole area have been brought out in this report. A Legislative Act is proposed, and arguments justifying it are reinforced with many charts, illustrations, and facts pointing to serious conditions along the coastline with which only the state can adequately cope.

* *Report to the Legislature of the State of New York* by the Joint Legislative Committee studying the problem of checking erosion along the Atlantic Shoreline of the State. Albany, N. Y.

Water for Victory Gardens



Baker City reservoir and municipal hydro-electric power plant.

By SQUIRE B. ROMANS
Collector, Water Department
Baker, Ore.

IF your city has plenty of water, and if the supply doesn't require a great deal of treatment, and if your country is at war, then what are your obligations to your city as far as the water department is concerned?

Under those conditions, we at Baker, Ore., did as other cities fortunate enough to have an abundance of water in an era of shortages, and encouraged the growing of foodstuffs through a special Victory Garden rate.

Actually we have been doing more than that. During recent years the water department has been conducting a Garden and Flower show and, in order to foster the community spirit, has livened the proceedings with a Children's Pet Show. Our garden shows have covered, much to our surprise, 43 different types of fruits and vegetables, selected through the help of the local farm bureau and other agricultural agencies. We offered ribbon prizes for the best individual vegetable in each class and the best garden collection of 8 selected vegetables taken from a single garden. Our flower show entry list covered 29 different flowers, which was surprising to us who hadn't given much thought to those things prior to the war. They called for some skillful judging on the part of our farm bureau friends

The pet shows for the children had three classes of entries. These were in order:

Largest Pet, Smallest Pet, Funniest Dressed Pet, Ugliest Dog, Best Trick Dog, Most Unusual Pet, Largest Rooster, Best Family of 3 Guinea Pigs, Rabbits (doe and litter), Ponies, Wild Animal Pet.

Baker's water supply comes from a mountain lake located at an elevation of 7,200 feet. It is sufficiently high to eliminate any need for pumping, thus our power costs are virtually nil. This natural reservoir holds 120 mg of water and has a watershed of 10,000 acres of fine timberland. The area, all a part of the Whitman National Forest, is under the supervision of the United States Forestry Department which, with the help of city guards, polices this area and keeps it free from grazing.

The reservoir feeds through an 18-mile pipe line to two additional reservoirs with a combined capacity of 4 mg. These reservoirs in turn are located sufficiently high so that gravity alone furnishes water pressure in City Hall at 80 pounds per square inch. The only treatment required is that of eight pounds of chlorine and one pound of ammonia per million gallons administered by Wallace and Tiernan feders.

The city also makes use of an auxiliary reservoir for storage with a capacity of 600,000 gallons, and uses the overflow from other reservoirs, storing it for irrigation.

Interest in Victory Gardens started in 1942 when we received 450 applications. In 1943 this went up to 960 and in 1944 remained substantially the same with 935 applications. The lower garden rate for water goes into effect with the May meter reading and ends with the October reading. See page 105 for Baker, Ore.'s interesting water-rate schedule.

Although the decrease in rates to meet Victory Garden needs is substantial, it actually has not affected our income greatly. In 1941, before the lower rate went into effect, we used 306 mg during the year. In 1942, the lower rate boosted this to 339 mg, in 1943 it went up to 353 mg, and this year it went up to an all time high of 367 mg, influenced to a great extent by the long summer dry spell that we had in this area. Unlike many cities, however, we did not have to curtail sprinkling; we had ample supplies for all of our needs.

NATIONAL VICTORY GARDEN CONTEST 1945

The National Victory Garden Institute is broadening the basis of its successful Green Thumb Contest held annually in recognition of the importance of the Victory Garden movement. This year $2,500 in war bonds and other valuable prizes will be awarded. A prize of $1,000 will be given again to the grand national winner for the best Victory Garden in the adult group, and other awards will be made for industrial-worker as well as home-garden participants.

For the outstanding gardener in the elementary and high school groups, there will be a prize of $500, with awards in other categories of the youth group. There will also be silver medals for state champions, certificates and ribbons in recognition of good gardening throughout the nation.

Judgments will be made on the basis of the Green Thumb Record Book in which each gardener or group of gardeners working together will keep a record which must be turned over by all contestants to the local Victory Garden chairman or sponsor not later than October 1, 1945. The Record Book is available to all entering the contest and may be procured, along with rules of the Green Thumb Contest, from local or state chairmen and defense councils, or by writing to the National Victory Garden Institute, 598 Madison Ave., New York 22, N. Y.

From WPA to Priorities

A city engineer looks back on nearly a decade of changing municipal construction

By ARCHER B. STUART
City Engineer
Healdsburg, Calif.

Here is a way to build a retaining wall without steel, form lumber, and practically without labor. The wall was built of sacks of cement laid in place and allowed to acquire a "warehouse set."

THE social and financial upheavals of the past two decades have produced some radical revisions in the engineer's concept of an economic analysis of a project. This revaluation in approach and consideration of entirely new factors governing both the economy and efficiency of a job are graphically portrayed in the following four thumbnail sketches of typical small municipal jobs.

Job No. 1—1927

This represents a "normal" job of street paving. Excavation was by a Caterpillar tractor pulling, in turn, a scarifier, grader and loader. Subgrade preparation was by grader, water wagon and power roller. Aggregates were hauled by batch-partitioned dump trucks to a two-sack mixer with swing spout. Concrete was spread and screeded by machine (without vibration); final finishing was by hand floats and burlap drags. Completed work was covered with dirt and flooded with water for two weeks. Everything seemed "normal"—even to the contractor's practice of tying 40 empty cement sacks into a loose bundle when the inspector was away from the mixer, and the regulation 50 sacks in a tight bundle when he was watched. But an excellent job resulted. We hate to repair services in *those* streets because we either bend or break the jackhammer bit when we have to cut a hole through the paving.

Job No. 2—1934

The job of laying an interceptor sewer with WPA labor was one of our first introductions to the new method of "engineering." This sewer line consisted of 24-inch concrete pipe laid eight feet deep in the bottom of a slough. The slough was chosen to avoid tearing up a busy street or acquiring expensive easements.

I had originally intended to use a trench hoe for digging, having found a contractor who would do this excavation for 50 cents per cubic yard. I had also planned to use a mixer to pour the concrete cradle for the pipe. But these plans were firmly vetoed by the powers supplying the alphabetical financial assistance on the grounds that the trench hoe would displace 100 men and the concrete could just as well be mixed by hand. Also the pipe sections could be handled by enough men with ropes instead of the mobile truck crane which was available.

The slough bottom consisted of blue clay. The formation was too tight to dewater with wellpoints, and yet the seepage churned the mud into a cross between thick whipping cream (remember?) and soft cheese (twelve points a pound). The only way to get a bite was to jump on a shovel with both feet a number of times and then nearly wreck the shovel handle to break suction and come up with a gob of goo which dripped and splashed on the outside, but resisted every effort to dislodge the firm core from the shovel blade. We tried drilling large holes in the shovels and also welding cross ridges, but the men themselves laughingly provided a partial solution to the problem by passing up shovel and all to the three successive stages of relay lifts and then to the top of the pile, where two men pried off the hunk of gumbo and passed the empty shovel back down.

Job No. 3—1941

A revetment for river bank erosion control had received WPA approval, and most of the material was already on the job. But hardly had the men been organized into working groups when the WPA folded up in our district and left us holding the bag, in fact nearly 20,000 burlap bags and several carloads of cement.

This job had been occasioned by a peculiar subsidence of large portions of the river bank after floods, which squeezed out a lower plastic stratum, resulting in a fracturing and washing away rapidly of the former firm overlying soil. The remedy as designed consisted of excavation of the water's edge well down into hard material for a toe hold to resist lateral movement; a skeleton box structure of concrete filled burlap sacks; and filling the hollow spaces with a sloppy lean concrete mix with the addition of 40 to 50 percent of Cyclopean boulders to give weight stability against overturning.

The design remained unchanged, but the method of construction bore no resemblance to the WPA plan. We were able to promote a bulldozer and trench hoe for preparation of the site; our three city dump trucks were teamed up to discharge directly into a moveable chute; and two concrete mixers wyed into a common spot. The sacks were only half filled and the tops folded under instead of being tied; sacks were filled in position and tipped into place instead of being carried; city officials and key men were di-

verted to the skilled and semi-skilled labor jobs; and ten ex-reliefers were hired instead of 90 government protegés swarming all over the place. Of significance is the fact that the actual cost of the project dropped to less than one-third of the WPA estimate.

Job No. 4—1943

On this undertaking the writer was involved only as a consultant to the regular consulting engineer, H. M. Engle of San Francisco. A government hillside housing project at one of our largest shipyards was threatened with disaster unless sliding and slipping top soil formations could be checked on the upper side of the winding road which gave access to the "cliff dwellings." The first design was a series of Redwood log revetments keyed back to pile anchors. This looked good for a rush job which would be effective for many years to come, but someone refused approval on the use of logs which could be made into lumber at the mill or used for foundation piling under warehouses and other such works. The second design conformed to standard cantilever retaining wall of reinforced concrete. This was overruled on account of the temporary shortage of reinforcing steel. The next choice was a heavy unreinforced gravity, concrete section, but a shortage of form lumber ruled it out.

At this point I suggested the use of sacked concrete. This lends itself beautifully to cheap, rapid and efficient construction such as for riprapping above and below highways; for revetments and retaining walls, for erosion protection and bridge-wing walls; and even for underwater anchors and small boat landing wharves.

But the jinx still lived at his old address on this housing project; after all details passed the approval of everybody concerned we found it impossible to get labor. The only available supply was a pittance of twelve-dollars-a-day (plus overtime) carpenters who were being shifted from one big job to another one.

So when the cement trucks arrived they were unloaded directly onto the site by the drivers and two carpenters as helpers—placed on the already prepared ground which had been graded and shaped by acrobatic motor maintainers. The sacks were not opened—just piled in form-fitting place, and left for "warehouse set" and coming rains to cure and solidify into a monolithic mass. It was something of a shock to see perfectly good cement stacked in piles without the customary careful protection of wood platforms and canvas covers, but getting 2,000 feet of walls built with effectiveness and dispatch justified the means. Best of all, the work weathered the winter without woe.

Out of this sketchy sampling of municipal construction during the past decade, let us hope that we have learned a few lessons on how to coordinate our national economy to the simple business of digging a ditch or building a few retaining walls. Let us also hope that the skill of the engineer will be utilized to its fullest advantage so that the improvements we need and can economically justify will be produced efficiently.

The use of sacked cement provided an inexpensive and rapid method of building a retaining wall. The job was completed by the city when WPA assistance was withdrawn.

New Developments in Cathodic Protection

ACCORDING to Howard E. Bailey in a paper delivered before the New England Water Works Association meeting held at Poland Spring, Me., a five-year record of performance for cathodic installations on steel water reservoirs in New England showed that this method of protection is very effective in preventing corrosion as applied to either old or new tanks and that its use is increasing.

In a more recent paper delivered before the New Jersey Section of the American Water Works Association, P. S. Wilson of the Cathodic Protection Division of The Gregg Company of Philadelphia, pointed out a number of further applications and improvements that have been developed for this device in recent years. One new application for the use of cathodic protection has been that on sewage works equipment.

Because the electrode serving as the anode is subject to electrolytic action and therefore its life is relatively short (average, five years) depending on the current being carried and the size and material of the electrode, the development of more stable electrodes have received much study.

It has been known for some time that platinum with its immunity to electrolytic action would be the ideal element. However, the high cost of platinum made its use prohibitive until recently when a method of manufacture was developed using a platinum wire inside a fiber glass cord. This device has been in use for over a year now and appears to be totally unaffected by electrolytic action.

One of the difficulties encountered in the use of cathodic protection has been the fact that there has been no method of protecting an electrode from the destructive effect of ice except by its removal during the cold winter months and this practice leaves a tank in the northern latitudes unprotected from corrosion for a period of approximately one-third of each year. To avoid this trouble the electrodylis type of cathodic protection which has been in use for over five years is an effective measure. This type of cathodic protection embodies the installation of fittings on the outside of the tank. This method does not have as active an effect in loosening old scale as does the more conventional type but it is a successful means of control and especially so when used on stand-pipes and elevated tanks. A. B. Kozma of the Rutherford, N. J. sewage treatment plant has one such installation according to Mr. Wilson.

The Bio-filtration plant at the AAF Overseas Replacement Depot, Kearns, Utah

Smoothing Out the Kinks

Problems of establishing efficient operation in this secondary treatment plant were solved with characteristic Yankee ingenuity

By R. DE VAL GARFF
Associate Sanitary Engineer
Office of the Post Engineer
AAF Overseas Replacement Depot
Kearns, Utah

IN the picturesque valley of Salt Lake, 14 miles southwest of Salt Lake City, lies the Army Air Forces Overseas Replacement Depot at Kearns, Utah. Here the first modern secondary treatment plant of appreciable size in Utah was built. The size and scope of this spacious and efficient Replacement Depot make it equivalent in size to the third largest city of Utah. This camp like any modern and efficient municipality is well supplied with good roads, electricity, heat, plumbing, a safe water supply and a complete treatment, single stage, bio-filtration sewage treatment plant.

Design

The plant is favorably located so that it receives all the sewage through gravity flow. It incorporates the following equipment and units of treatment:

1. A grit chamber with a central by-pass and two grit channels 45 feet long by 2.5 feet wide. These units were designed without the means of maintaining a constant velocity of flow. A sump at the bottom of each grit channel collects the grit and conveys it through a 6-inch pipe to an open grit pit.

2. An outside comminutor chamber with a Chicago Pump Co. Type 25M Comminutor and a bar screen by-pass channel.

3. A Parshall flume with a throat 2 feet wide connected to a stilling well for flow measurement.

4. Two Dorr Clarifiers 75 feet in diameter and 12 feet side-water depth, one for primary and the other for secondary settling.

5. Three Pomona mixed flow turbine recirculation pumps and connected surge tank.

6. One 155-foot diameter bio-filter containing a rock bed 3.5 feet deep and a Dorr rotary distributor.

7. Two Wallace & Tiernan Type MSV Gas Chlorinators for pre- and post-chlorination.

8. One Barnes-Dorrco plunger pump for raw sludge feed from the primary clarifier to the digesters.

9. One Fairbanks Morse centrifugal pump for secondary sludge feed to the raw sewage line.

10. One Dorr multidigestion system comprising two tanks 50 feet in diameter by 26 feet side-depth.

11. Twenty-two uncovered sludge drying beds with a total area of 100,000 square feet.

12. A well equipped laboratory operated by a full-time chemist.

Operation

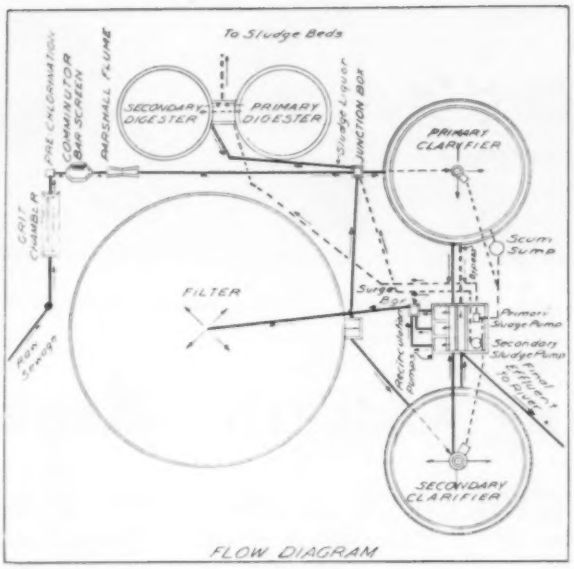
The sewage flow may be traced through the sewage treatment plant by means of the flow-sheet shown. The flow enters the plant at the grit chamber, passes through a comminutor where the coarser particles are screened out and ground. The rate of flow is then measured as it passes through a Parshall flume. The primary clarifier receives the sewage from this point through a diversion box which may be used as a by-pass. From the primary clarifier the effluent flows over the peripheral weir and mixes in the pumping chambers with the sewage recirculated from the secondary clarifier. Three turbine pumps lift these mixed effluents to a sufficient height in a concrete surge tank to allow it to flow by gravity onto the high rate filter. The rotary distributor feeds the liquid evenly over the rock bed. Underdrains in this bed collect the filtered liquid and a portion is diverted to the primary clarifier and the rest flows to the secondary clarifier.

The secondary clarifier is equipped with a launder, or effluent trough, adjacent to the central feed well in addition to the ordinary peripheral effluent launder. The purpose of these multiple overflow weirs is to provide a higher overflow rate in the secondary clarifier and lower rising velocities at the weirs. Clarifier effluent for recirculation back to the filter is drawn off at the central launder while the overflow from the peripheral weir becomes the plant effluent and flows to the Jordan River.

Sludge in the secondary clarifier is collected into a sump and then pumped to the primary clarifier influent to resettle with the primary sludge. In the primary clarifier, sludge scraping mechanism actuates a rotary surface skimmer which collects the scum from the surface of the clarifier into a scum sump from which it is pumped to the primary digester.

The heated contents of the primary digester are mixed with the raw sludge during pumping by means of a rapid mixing device and a centrifugal recirculation pump. This provides seeding to assist the rapid digestion of raw sludge. During raw sludge pumping the digested sludge flows by gravity

from the primary into a ring box and then into the secondary digestor. At the same time supernatant liquor at the top of the secondary digester flows through the secondary ring box back into the primary clarifier for further treatment. The secondary digester sludge settles out, becomes completely digested and is drawn off periodically by gravity to sludge drying beds or to wet spreading equipment for direct fertilization. Digestion gas is collected in the domes of the fixed cover digesters. This gas is used to heat two of the buildings; the primary digester and any excess is burned.



FLOW DIAGRAM

Problems of Operation

Construction of the sewage treatment plant was completed in December 1942 and turned over to the Post Engineer. In turn, responsibility was delegated to an engineer, a chemist, and one operator, none of whom had had any experience in sewage plant operation. Since this was the first major sewage treatment plant in Utah, no experienced help could be found. The constructing contractors turned the sewage flow into the plant, tested the units, and left.

The problem of starting the plant with the advent of winter became a pressing one. Sewage plant operators had to be found, and trained. Some of their initial operating experiences were sad. It was not until March 1943 that a competent chemist was secured and adequate analytical guidance became available.

With the assistance of sanitary engineers of the Ninth Service Command, careful study of literature on the subject, a training program for operators and the use of common sense, good operating results were achieved. Proper flow ratios between recirculation and the incoming sewage were established to begin with, providing optimum sedimentation in the primary clarifier. Appropriate sludge pumping schedules, cleaning and operating schedules for all units of treatment, and lubrication schedules for all machinery and equipment were set up as experience dictated.

Through the excellent cooperation of the Post Engineer and his staff many improvements have been made to allow efficient, flexible operation. Some of the basic equipment such as the comminutor was installed by contractors three months after the beginning of operation. By May 1943 both filter and digesters were working efficiently and odor was eliminated. Adjustments to the filter distributor arms were made from time to time to assure even distribution. Weekly the distributor arms and nozzles are flushed. The end of each distributor arm has been provided with a baffle plate to confine all flow to the filter, maintain an even loading and eliminate filter fly nuisance. Careful flow regulation from the filter to the primary clarifier prevents settlable solids from reaching and clogging the filter. In the spring the filter was flushed for ten days with extra heavy pumping and surface ponding was eliminated mechanically by the use of a bar, odor disappeared and suspended solids removal jumped from 53 percent to 84 percent and BOD from 73 percent to 91 percent.

In digester operation pH was controlled by careful additions of lime and no foaming was experienced even though the first batch of sludge was drained after fair digestion had been established. Heat was provided in mid-winter by adapting two coal boilers to the designed digester heating system and the temperature was increased gradually from 40 to an optimum 90 degrees F.

At first the digester manhole covers were left open to allow all gases to escape. When these were closed, however, it was found that the fixed covers leaked profusely at their junction with the side-walls. They were first sealed at their junction by digging out the old tar, washing the dirt out with a hose, drying, cleaning with gasoline and repouring the crevices with fresh 140-degree melting point tar. The gas broke through this seal also. The removal and cleaning process was repeated and this time the crevices were filled with Hydroseal and topped by cloth 12 inches wide tarred to the cement surface. Gas again escaped. The Hydroseal on the secondary digester was replaced with tar, topped with tarred cloth and then the seals on both the primary and secondary covers were capped over with concrete 12 inches wide and 8 inches deep. Even then gas worked to the surface under the concrete ring, but by filling the indentation between the concrete ring and the cover with water 4 to 8 inches deep a perfect gas seal resulted. Either sodium or calcium chloride may be used as an antifreeze.

Grit Handling

Sewage flow was under 1 foot per second most of the time, and because of the absence of a proportional weir or similar device in the design of the grit chamber a large amount of sewage solids settled out with the grit. A small open grit pit connected with the two grit channel collection sumps received periodic collections of grit. From a health standpoint it was necessary to solve this problem. The pit was greatly enlarged and a two-inch centrifugal pump was provided to wash the grit accumulation in one grit channel while the alternate received the sewage flow. Grit was agitated by a rakelike scraper and churned by the pump effluent to loosen and float the organic solids. Grit was allowed to settle for a minute and the organic solids were pumped off. This process is repeated until the grit is clean. It is then drained to the pit and covered with oil to control any nuisance.

Plant Adaptations

To correct the sewage flow measurement the Post Engineer provided a stilling approach to the Parshall flume. To secure greater accuracy at lower flow the throat width was reduced by wood partition from 2 feet to 1 foot. The timing gears were reversed to change the flow recorder from an eight-day to a two-day scale. These changes resulted in a more accurate and sensitive flow measurement.

The scum sump gave rise to odors. To overcome this the floor was raised 1 foot to the level of the draw-off line and sloped for drainage.

(Concluded on page 115)

The Public Responsibility for Good Transit

By LESLIE WILLIAMS
City Planning Engineer
American Transit Association
New York City

Economic Usefulness of Transit through Community Understanding

LOCAL transit entered this war assignment with 24 percent less passenger carrying capacity than in 1926, when it was at its peak.

In 1943, transit provided 22 billion passenger rides, equivalent to one ride each day for every man, woman and child in every community of 25,000 population and over in the United States, or 28 percent *more* passengers than were carried in 1926. This is a dramatic example of what can be accomplished by community action for a national cause.

With the cessation of hostilities in Europe the community's responsibility for moving the masses by transit will continue. It is probable that only limited automobile manufacture, for replacement purposes and for those who must use automobiles, will begin before the war is over. Automobiles will, therefore, gradually return over a period of years. Our major local transportation problem will, therefore, remain for some time to come, one of moving *people* rather than combatting street congestion caused by "too many vehicles and too little street space."

Transit's Peacetime Role

Transit's demonstration of its ability as an efficient and economical wartime local public carrier has brought home to public officials and civic organizations its potentialities as a peacetime instrument—a simple and inexpensive weapon for:

1. Combatting street congestion and alleviating traffic accidents.
2. Economizing on proposed expenditures for street widenings, limited access speedways with ramps, distribution plazas, approach facilities and parking terminals.
3. Encouraging city rebuilding and arresting the uneconomical dissipation of urban values.
4. Protecting the community's relatively favorable present financial position.

Business and real estate interests, home owners and the general taxpayer also are beginning to understand the real advantages of public transit.

As the size of communities increases and population and business density increase, the greater is the percentage of essential daily travel completed by public transit. Travel by public carrier ranges from 15 percent in the smaller communities to almost 90 percent in the largest cities. In cities of 100,000 population and over, daily rides on public vehicles exceed the total population.

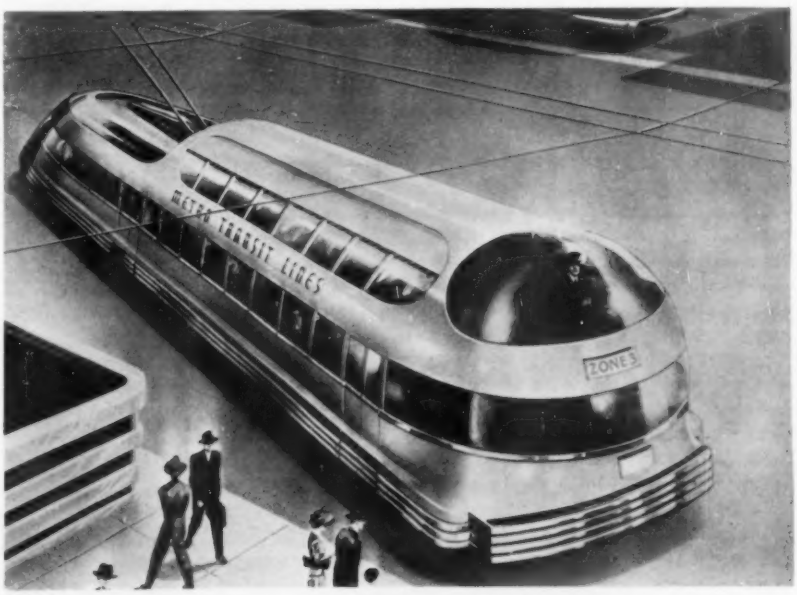
The community has a financial interest in transit. It cannot deal with transit in the same manner that it can deal with a piece of tax delinquent property when it fails to meet its taxes. If the transit service is neglected to the point where it falls behind financially, then the public has to subsidize it from taxes derived from other sources. It is a community responsibility.

Economy of Space

It is economical in the use of street space. A trolley coach or a bus line can carry more people, all seated, in one hour than a 7-lane thoroughfare used exclusively by automobiles operating under normal conditions.

This new approach which gives increased attention to the movement of people by transit does not and should not lessen the community's interest or attention in the provision of needed and adequate streets and parking facilities for automobiles. It merely insists upon obtaining the maximum transportation out of existing streets and of building into needed new highway facilities sound traffic principles which provide for rapid local transportation for both public and private vehicles simultaneously, thereby obtaining the maximum benefits and usage from expenditures invested for the movement of people and goods.

Those people who visited the New York World's Fair will recall how the principle of mass transportation was built into the circulatory pattern of the Fair. Visitors to the World's Fair did not expect to travel from exhibit to exhibit within the Fair in private automobiles and park their vehicles at the front entrance. They left their vehicles at convenient locations outside or adjacent to the Fair grounds and moved about within, either on foot or in public transportation vehicles. The New York World's Fair



Post-war noiseless electric trolley coach designed by the Timken-Detroit Axle Company, featuring a driver's seat on the upper deck, a sky view, roll back roof, and the use of lighter, stronger materials.

could not have functioned if designed on individual transportation. Our concentrated downtown business areas are "permanent World's Fairs."

Management

Better public understanding of the place of public transportation in the community is encouraging transit companies to view the future optimistically. Transit management has learned from wartime travel conditions many things regarding its operations and the desires and riding habits of the public. It is now planning for the future by working in close cooperation with public and civic agencies, conducting extensive research studies and endeavoring to lay aside sufficient funds to bring about substantial changes and improvements in transit service in the post-war period. The transit industry recognizes that if a high level of transit riding is to be maintained in the post-war period, it will have to meet the public's demands for a more convenient, comfortable, speedy and economical transit service.

Develop Public Interest

Public understanding of the proper place of public transit in the post-war community is essential. When this is thoroughly understood, transit will be developed to its full economic usefulness. Franchise provisions drafted for horsecar or pre-automobile days will be revised. Fare structures will be adjusted to encourage a more uniform daily riding and will be related to or based upon sound merchandising principles.

Transportation—A Community Problem

The local transportation problem is definitely a community one and cannot be solved in or from Washington. It is a local function and the spadework must be done in the community. The city has a responsibility for providing good public transit service to the whole urban area whether some areas can pay for the service or not. The provision of service preceding development, for instance, calls for a high level of cooperation between public agencies representing the whole metropolitan area and transit management which has to provide the service.

Cities Urged to Lease—Not Sell—Tax-Reverted Property

By J. RUPERT MASON

San Francisco, Calif.

IN the light of the vast new frontier of both urban and rural land which has escheated since 1933 for non-payment of *ad valorem* taxes, and the volume of land that is certain to escheat both before and after the end of this global struggle, there is much significance in the recent ruling of the New Jersey Court of Errors and Appeals in *Wilentz* v. *Hendrickson*, 38 *Atl.* (2d) 199. This long and careful decision held unconstitutional a statute enacted in 1941 that sought to permit compromise of unpaid interest accrued after non-payment of property taxes. The superior rights of states and municipalities in land over those of tax-defaulters were thus sweepingly reaffirmed.

While this particular case had to do with delinquent railroad taxes, it suggests the unwisdom of the too-common policy of municipal officials who would compromise delinquent taxes or sacrifice the rights of all the public in tax-escheated land in order merely to get real property back on the paying tax rolls.

The authority to lease escheated land has been granted to counties, cities, etc., in California by Chap. 9, Part 6, Div. 1 of the Revenue and Taxation Code, and experience is proving that the community revenues from such land, when leased, are about three times as much as the community would derive as taxes from a private holder of title-deed. This larger revenue from such leased land inures to the benefit of every taxpayer in the community, and has the approval and support of informed taxpayers.

Bernard Shaw on the Land Question

In his newest book, "Everybody's Political What's What?", Bernard Shaw devotes the second chapter to the land question and writes:

"It is so fundamental that if we go wrong on it we go wrong on everything else automatically."

Under our constitutional system in the United States, the Legislature may delegate authority to its local units of government to tax and control the tenure of land under the jurisdiction of the state. When exercised, such power is exclusive, and uncontrollable by any federal statute. (176 US 335.)

Hence, there devolves on the cities and counties an important opportunity in administering this new frontier as a sacred trust for the public weal (43 C.J. p. 211), which if they fail, neglect or refuse to perform more diligently than in recent years, they may be sure the Federal Congress, on one pretext or another, will administer.

The burdens that this global conflict must create are greater than any before imagined, and can best be shouldered if our people are enabled to enjoy freedom of access to the necessary sites, whether for farm, home or business, without paying site speculators a costly "premium" for the privilege of working or living on the site needed. Officials must discourage speculation in titles to land sites by every legitimate means, and one such means is suggested herein. The time to "appease" non-payers of *ad valorem* taxes has clearly passed, and any legislation designed to "compromise even the interest on delinquent taxes is expressly prohibted in many states. In the post-war years it will be buildings and "things" that our people most need, not idle tax-defaulted land which has for too long only served to reduce the supply of "sites" the people need for business and homes.

Uthwatt Report Cited

In this connection, city officials would do well to obtain a copy of the "Uthwatt Report,"* signed by the Hon. Mr. Justice Uthwatt of England, as Chairman of the Royal Committee issuing the report, in Chapter 147 of which the following language appears:

"We recommend that once any interest in land has passed into public ownership it should be disposed of by way of lease only, and not by way of sale, and that the authority should have the power to impose such covenants in the lease as planning requirements make desirable, breach of such covenants to be enforceable by re-entry.

"Although this recommendation is made primarily in connection with reconstruction areas, we intend it to be of *general application to any interest in land disposed of by a public authority.*"

Should any readers of THE AMERICAN CITY deem any ideas herein too "radical," their consideration of Art. 1, Sec. 10 of the New York State Constitution is suggested.

* See THE AMERICAN CITY for November 1943, page 49, and December 1943, page 53.

Putting the Taxpayer's Dollar into Pictures

By PHILLIPS BRADLEY

MORE than once on this page, the value of graphic presentation of financial and other statistical data has been suggested. Now the tax bills will be going out within the next few months from many City Halls. It may be worth while to recall—by way of illustration—some of the ways in which the taxpayers can be helped to appreciate better what happens to their money.

First of all, taxpayers ought to know something about how their local government is organized in order to appreciate what their money buys for them. Most people know something about one or two agencies of their municipal government in some detail but they are unlikely to have much of an idea of its range or complexity. A list of city officials, with the titles of their offices, does little to enlighten the community on how its City Hall operates. The chart of City Government from Berkeley, Calif., does a nice bit of animation in organizational portrayal. The size and relationship of the various agencies are given visual precision far greater than if they were spelled out in print. The pictograms for the various departments show at a glance the various kinds of jobs for which City Hall is responsible. As has often been pointed out here, every City Hall is likely to have several people who can do this kind of animation without much difficulty—and so enliven the annual report, or the taxpayer's bill.

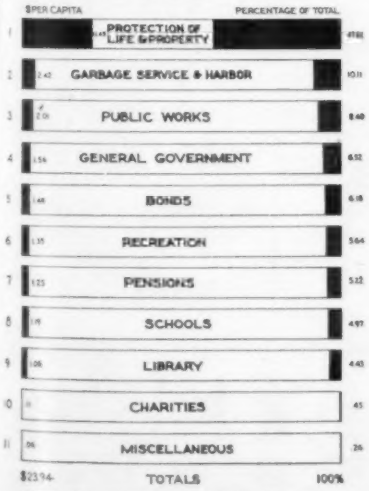
Besides knowing more about his City Hall and what it does, however, the taxpayer is even more interested in seeing how his ta xdollar is spent.

The charts from Berkeley, the State of Illinois, and the City and County of Honolulu, are quite different but all revealing from this point of view. The Berkeley chart is, of course, a very abbreviated statistical summary. It will not, perhaps, stimulate the taxpayer's interest or understanding as vividly as the other two. The Illinois State tax dollar is the usual type of pie chart in basic form—but animated. Here again, the value of pictographic presentation is evident.

The Honolulu chart is one of the most ingenious that has been developed anywhere. The simple statement of the tax dollar subdivisions on the right provides a quick comparison between the basic municipal services. The animation for each of the major functions within each over-all activity serves at once to dramatize the variety

BERKELEY, CALIFORNIA*

WHERE THE MONEY GOES

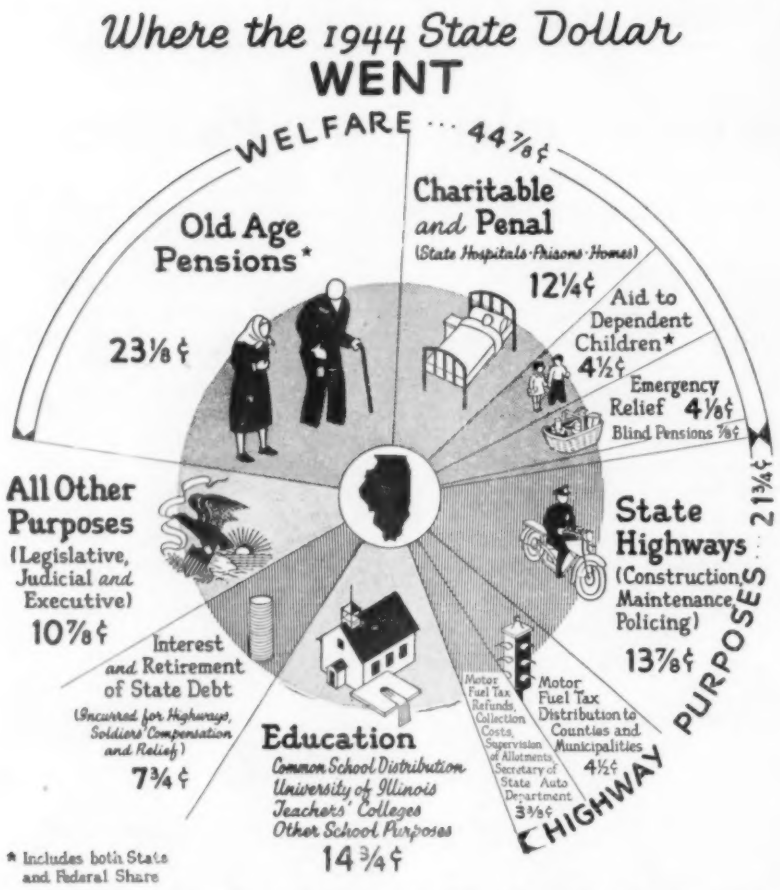


* See also chart on the following page.

CITY AND COUNTY OF HONOLULU, HAWAII

WHAT YOUR MUNICIPAL DOLLAR BUYS

STATE OF ILLINOIS



This chart represents a dollar of warrants issued for the fiscal year ended June 30, 1944. Trust fund warrants and transfers are excluded. Notice that warrants issued for welfare purposes comprise forty-four and seven-eighths cents out of every dollar, while all highway purposes have twenty-one and three-fourths cents out of each dollar of warrants issued. Warrants issued for "All Other Purposes" make up less than one-ninth of the dollar. This latter caption includes the legislative, judicial, and executive warrants.

and scope of municipal services.

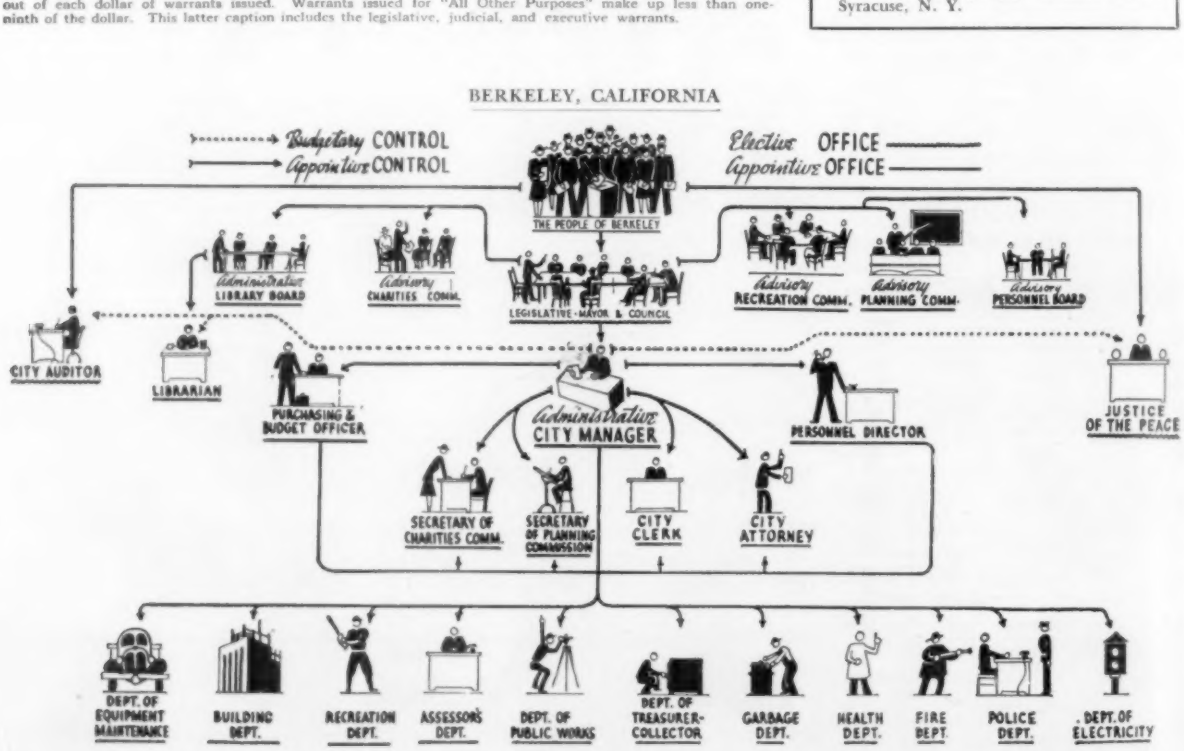
Reproducing this kind of pictographic illustration in bulk for enclosure with tax bills involves a minimum cost in dollars and cents—even within City Hall's annual printing bill. The return in citizen understanding and good will toward City Hall is likely to be much larger than even the optimists imagine. Why, after all, should not the taxpayer be taken into the confidence of City Hall and through such a device as these charts stimulated into further inquiries on how his tax dollar works for him? This kind of direct and personalized contact between City Hall and the community citizen-stockholders is likely to pay big dividends in community support for City Hall programs.

State Citizens Council Confers

The extent to which civic education and local community planning should be stimulated by state agencies or should be left to local governments and private effort was one of the timely and vital subjects discussed February 23-25 by a round-table conference of the New York State Citizens Council. Held at the IBM Homestead, Endicott, N. Y., through the public-spirited hospitality of the International Business Machines Corporation, this conference brought together some 30 outstanding educators and civic leaders from various parts of the state.

It was the consensus of the group that the State of New York and its political subdivisions should accept increased responsibility for community planning and for educating citizens in public questions and affairs. For information regarding this conference and the activities of the New York State Citizens Council, inquiries should be addressed to Mrs. Rhea M. Eckel, Executive Secretary, 404 Orchard Road, Syracuse, N. Y.

BERKELEY, CALIFORNIA



Historic Independence Hall would be restored to its original condition and made the center of a rehabilitated Old Philadelphia under plans suggested by the Independence Hall Association.

Plans to Rehabilitate Old Philadelphia

A proposal which includes the elements of successful city planning and rehabilitation of blighted areas

By CHARLES HAYDOCK
Consulting Engineer, Philadelphia
Member of Executive Committee
Independence Hall Association

WHEN the Independence Hall Association was organized in 1942 to restore Old Philadelphia — the district near Market Street and the Delaware River made famous by Independence Hall — a plan of rehabilitation was set in motion which now promises to be far-reaching in effect. The district of Old Philadelphia occupied a prominent place in the early history of our country, but with the passage of time it has so deteriorated that today only a shadow of its past glory remains.

To combat further deterioration of this historic center of American life a group of Philadelphia citizens representing practically all civic, historic, and technical groups in the city organized the Independence Hall Association, appropriately enough, on July 4, 1942, in the Hall of the American Philosophic Society, on Independence Square.

Historical Buildings in Area

Within this area are some of the buildings most clearly associated with our early history. Independence Hall, which now houses the Liberty Bell, stands on the north side of Independence Square. It dates from 1735 and is not only famous as the place where the Declaration of Independence was signed but as one of the finest surviving examples of early American architecture. To the east of it is the old City Hall where the Supreme Court sat in 1791, and behind, the Philosophical Society founded in 1787 by Benjamin Franklin, who was its first president. Old Congress Hall, erected between 1787 and 1797, is to the west and was the home of Congress when Philadelphia was the National Capital. Other notable buildings in the vicinity are the Hall of the Carpenters Company, erected 1770, where the Continental Congress first met; the old Custom House, erected 1824, the second bank of the United States; the old Franklin Institute, erected 1826, now a museum of early America; the Betsy Ross House, where the first flag of the United States was made; Christ Church, a fine example of Christopher Wren architecture dating from 1727, with its Queen Anne Communion Service still in use; and other buildings of historic fame and beauty.

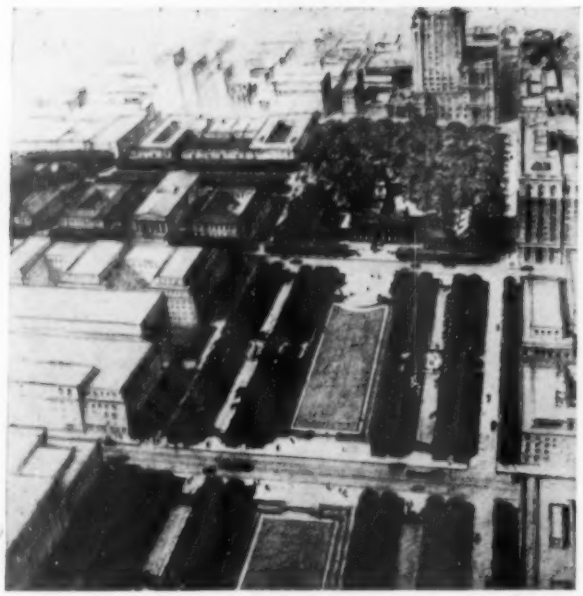
This area is of historic significance not only to the American people but to democratic peoples everywhere—a fact recognized by Czechoslovakia when its Declaration of Independence was signed there on July 4, 1918.

One of the first activities of the Independence Hall Association was to have the Independence Hall group of buildings designated a National Historic Site under an Act of Congress. The agreement between the city and title remained in the City of Philadelphia, but the importance of the site to the Nation is acknowledged by a bill pending in Congress to "provide for investigating the matter of the establishment of a national park in the old part of the city of Philadelphia for the purpose of conserving the historic objects and buildings therein." The agreement betwen the city and the federal government would provide for the active cooperation of the National Park Service and the city in various ways, and call for a Commission of seven persons to determine the extent of the Independence Hall area to be recommended to Congress for development.

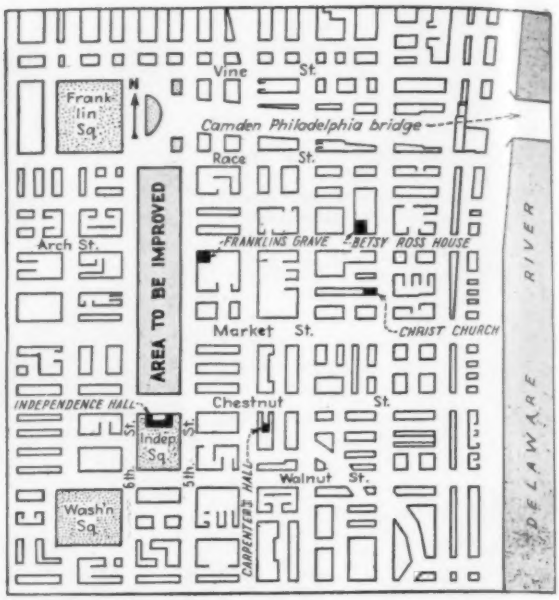
The Association Recommends

The Association has reviewed all the plans previously made for this district and has recommended to the Commission the construction of a park fronting on Independence Hall and extending northward from Chestnut Street between Fifth and Sixth Streets, eventually, it is hoped, to Race Street, connecting with the Philadelphia Plaza of the Philadelphia and Camden Bridge over the Delaware River.

Such a development could be made progressively, starting with as little as half a block and eventually including



Model of rehabilitated Independence Hall area looking towards the central business district of Philadelphia



Street layout in Philadelphia showing the relationship of the Independence Hall area to the surrounding district

the entire three blocks. This area contains few modern buildings. Many are ild and dilapidated, assessments and real estate values have declined progressively. Many buildings have been demolished and the ground is vacant, or used as parking lots.

The proposed park would include widening Fifth and Sixth Streets to boulevard width, affording improved access to the Independence Hall buildings, a park and playground suitably landscaped, and adequate facilities for parking buses and automobiles, possibly underground. The park could be continued eastward from Fifth Street between Chestnut and Walnut Streets, where dilapidated conditions also prevail—making the Hall of the Carpenters Company the center of the second block in this extension. Washington Square, immediately south of Independence Square, is one of four original squares laid out by William Penn, equidistant from City Hall Square. The entire district is largely residential but neglected. The Association hopes that the area can at some time be rehabilitated for purely residential purposes by developments of the nature of Tudor City or London Terrace in New York, extending from Independence and Washington Squares to the Delaware River, perhaps to include frontage on the river at some later date. With the construction of sewage-treatment works, now under consideration, the river front, never esthetically attractive, could be developed as it warrants.

Will Become Part of City Plan

The new City Planning Commission of Philadelphia and the Independence Hall Association will undoubtedly coordinate their plans, articulating the Independence Hall developments with the whole city plan. Meanwhile the interest in restoring to its rightful status this historic center of early American life will naturally spur the Commission to carry forward its own plans for Philadelphia.

Other Buildings to Be Restored

The Association proposes not only to rehabilitate and give these historic buildings their proper setting, but to consider at some time the reconstruction of significant buildings which have been demolished, such as the Executive Mansion, occupied by Presidents Washington and Adams, and the house in which Jefferson wrote the Declaration of Independence much as the old buildings have been reconstructed at Williamsburg.

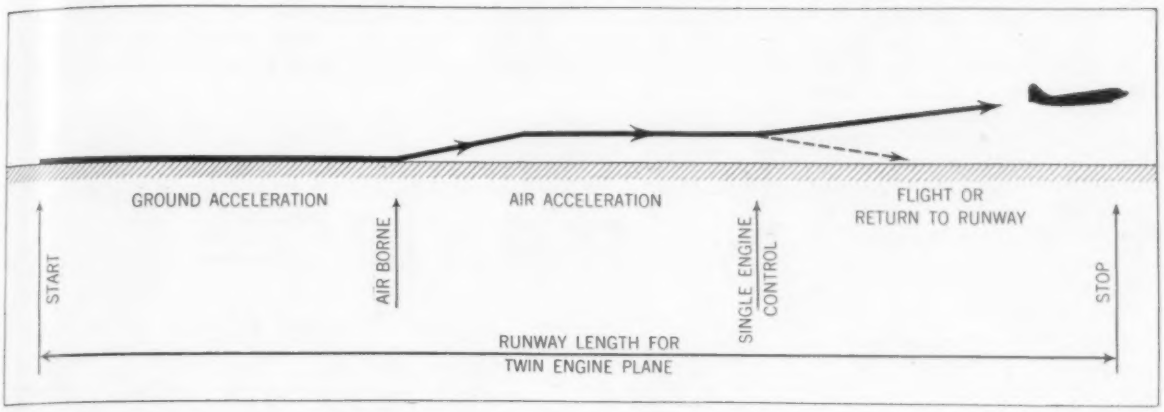
Here is a real post-war plan in the making. It covers only one small portion of Philadelphia, which was for so many years the first city in North America, but it contains all the elements for successful city planning and the rehabilitation of blighted areas.

A Quiz on the City and the Citizen

By IRVING T. DUKE

Of course you know that a citizen of Philadelphia is a Philadelphian, a citizen of Detroit a Detroiter, and a citizen of Los Angeles an Angeleno, but just how good is your general knowledge of the correct approved title as applied to other well-known cities? Try the following fifty. Answers, on page 137, are based on local Chamber of Commerce choices.

1. Albuquerque, N. M.
2. Amarillo, Tex.
3. Atlanta, Ga.
4. Battle Creek, Mich.
5. Beaumont, Tex.
6. Bellingham, Wash.
7. Bethlehem, Pa.
8. Charlotte, N. C.
9. Cheyenne, Wyo.
10. Columbus, O.
11. Corpus Christi, Tex.
12. The Dalles, Ore.
13. Des Moines, Iowa
14. Duluth, Minn.
15. El Paso, Tex.
16. Flint, Mich.
17. Fond du Lac, Wis.
18. Fort Wayne, Ind.
19. Fort Worth, Tex.
20. Grand Rapids, Mich.
21. Jacksonville, Fla.
22. Jersey City, N. J.
23. Kalamazoo, Mich.
24. Kansas City, Mo.
25. Key West, Fla.
26. Little Rock, Ark.
27. Memphis, Tenn.
28. Mobile, Ala.
29. New Haven, Conn.
30. New Orleans, La.
31. Omaha, Neb.
32. Oshkosh, Wis.
33. Phoenix, Ariz.
34. Pueblo, Colo.
35. Rochester, N. Y.
36. Salt Lake City, Utah
37. Santa Fe, N. M.
38. Sault Ste. Marie, Mich.
39. Savannah, Ga.
40. South Bend, Ind.
41. Spokane, Wash.
42. Tacoma, Wash.
43. Tampa, Fla.
44. Terre Haute, Ind.
45. Trinidad, Colo.
46. Troy, N. Y.
47. Tulsa, Okla.
48. Waco, Tex.
49. Walla Walla, Wash.
50. Yonkers, N. Y.



Runway for use of heavy planes must be long enough to allow for engine failure and the return of the plane to the runway. These runways must therefore be from 4,200 to more than 8,000 feet in length to provide ample room for safe return to the runway in case of engine failure. Flight strips for private or personal planes, on the other hand, usually need be no more than 1,500 feet long, and one strip is sufficient.

New Airports

Planning low first costs, low upkeep, good operations, future expansion to suit local needs in the air age

By PAGE GOLSAN
Ford, Bacon & Davis, Inc.
New York, N. Y.

AIR transport traffic will increase many-fold in the next few years, and it may go hard with a city to be left out of the procession because of an inadequate airport. The big question is: How much investment in what type of airport is warranted by the prospective traffic?

The new field, whether large or small, should be carefully located and be adaptable for changes sure to come.

It is easy to make costly mistakes; wrong location, poorly arranged or over-size runways, buildings in the wrong place, old type structures with excessive maintenance; all these run up the first-cost and the operating expenses. Right location and proper design hold down the investment, promote traffic, and reduce annual costs.

No one should be deceived; the traffic of smaller cities and towns will not bring to their airports the scheduled main line air transports except for refueling operations. These communities will be served by local or pickup routes.

William A. M. Burden, Assistant Secretary of Commerce, recently said: "Today we have 3,086 airports. The report the Civil Aeronautics Administration is preparing for Congress shows we will need double that number within five to ten years after the war, plus improvement of 1,625 of the existing fields."

At present only 286 places in the United States are approved stops on scheduled airlines and of these 174 need improvements. Under the CAA plan there will be 1,827 cities with airports which can accommodate air transport operations.

The Basis of Airport Design

There are three important factors to be weighed in the location and development of an airport. The first and most important is *traffic*—passengers, mail, express, cargo—the industry's source of revenue. The volume and kind of traffic, when it will come, how it will be handled seasonally and daily, determine the size and kind of facilities required.

The second point is the *technical requirements* of the aircraft that will use this airport, now and in the future. The characteristics of planes in motion and at rest, their dimensions, limitations, and the need for special servicing fix the size and kind of facilities.

The third factor is *design economy*. Anyone can build a big field—money no object—the problem is one of balancing the safe limits against the economic facts. The site selection and the design should, therefore, provide for progressive construction in stages as the traffic grows.

The Site—The proper location of an airport is probably the most important factor of all. Each community has its own special circumstances and each site has its advantages and disadvantages of accessibility to the business center, soil conditions, air obstructions, cost of land with land development and the possibility of expansion. After careful study these are balanced for each site on the scores of long-term costs and efficient and safe operations so that the best site may be indicated.

The opportunity to expand ranks high in order of requirements. A number of bad mistakes have been made by developing locations which later had to be abandoned because it was impossible to enlarge the landing areas at any reasonable cost. Consideration of future traffic, therefore, plays a big part.

Lost time in getting to and from the airport nullifies the advantage of air travel—speed—and should be held to a minimum consistent with other factors. The scheduled flight from Minneapolis to Chicago is 2 hours and 10 minutes. But it takes 20 minutes to get to the airport in Minneapolis and 60 minutes from the Chicago airport to the Loop. The local travel time, in this case, adds up to 61 percent of the air flight time.

Its Development—Having selected a site, a plan for development should be prepared showing facilities initially to be built and those to be added as traffic increases and technique changes.

Airport Capacity—There are two extremes of thought on airport capacity; the first is to the effect that existing aircraft will require only minor design improvements to meet future demands

out that we will need more such planes and therefore more and larger airports. The other is that the future aircraft will be something entirely different—helicopters rising and descending vertically—and existing airports will be able to accommodate a greater volume of traffic. The technical and economic facts appear to be somewhere between these two.

As a rule, the controlling factor in the capacity of an airport is the number of planes which can land and take off in a given interval.

Runway Length—Runway length is usually a controlling factor in the size and investment in a field and depends upon the type of planes that will use the field and the local physical conditions.

For communities up to 5,000 population, not on present or proposed air transport systems, the CAA recommended length (sea level conditions, clear approaches) is 1,800 to 2,700 feet for landing strips (not runways). This is an Airport Class 1, and provides for small private-owner type of planes of 4,000 pounds gross weight.

Communities with a population of 5,000 to 25,000 located on present or proposed feeder lines should consider runway lengths of 2,500 to 3,500 feet (Airport Class 2). This provides for smaller size transport planes up to 15,000 pounds. However, some cities of this group may well consider longer runways (Airport Class 3) for the future Type A ship—also, after the war some of the DC-3s may be put in local service.

The Class 3 CAA field has 3,500- to 4,500-foot runways and thereby provides for transports of 50,000 pounds gross weight. Cities of 25,000 to several hundred thousand should consider whether this will be adequate.

Runway length, airport cost, plane operational cost, and plane design are all interrelated. If long runways are available, airplanes with heavier wing loading and lower operational costs can be used. In turn this permits lower rates and augments traffic.

Facilities—The proper design and layout of terminal buildings, hangars, shops and other facilities is set about by balancing the advantages and disadvantages of size, type, location, etc., to determine the best result: low first cost, low upkeep, good operations. Provision here also should be made for expansion. Adequate areas should be provided for auto parking.

Future ships may require little hangaring, much of the servicing being done outdoors; but this calls for large areas for outside parking. Nose hangars are one answer.

Airport Revenues—Whether or not wholly self-supporting, an airport may be an important means of maintaining the city's competitive business position. Compare, for example, the substantial growth of Pacific Coast cities which were the terminals of transcontinental railroads with the lack of growth of Coast cities, not terminals.

Joint Planning by a System of Cities

How to Meet the Needs of Personal Flying

By J. E. BULLARD
Central Valley, N. Y.

BEFORE private planes can be made popular, private plane airways have to be developed. A system of airparks is much like a system of highways except that no airpark system has yet succeeded in placing passengers close enough to their destinations. From any part of any city it requires less time as a rule to go to the railroad station by bus, surface car, subway or elevated than it does to go to the airport and it probably costs less, especially if a taxi has to be used to get to the airport.

Such facts as these suggest the desirability of a group of cities over a route of a thousand miles or more getting together and having their planners work as a unit to develop private plane airways which will prove attractive to plane owners, whether planes are used for pleasure or for business. The first step, naturally, is for these planners to make surveys in their individual cities to determine as nearly as possible the number of private planes which are likely to be bought directly after the war and for what purpose they will be used. For example, if the majority of them are going to be used for business purposes, the plans resulting from the survey might be somewhat different from what they would be if the majority were going to be used for pleasure.

If the entire route can be made to appeal to plane owners, it follows that the ports built are going to bring business to the cities. The more they appeal to, the greater the volume of business. Such ports built by all the cities along the route are pretty certain to prove good investments to the cities which build them. On the other hand if the ports are built too far out, they become merely service stations for planes to stop, gas up, have the oil checked, and go on.

The greater the number of private plane airways which are developed and the more mileage they represent, the greater the number of private planes we may expect will be owned and flown. Not until after good highway systems were built did the automobile come into its own. It can be no other way with planes. If a touring trip can be made more conveniently, at less cost and with the consumption of little if any more time with automobiles than with airplanes, there is less incentive to own planes. If airways for private planes are quickly developed, making possible swift tours at relatively small cost, the more people will want to own and fly planes.

At present the hours and minutes consumed in going between airports and cities by surface transportation plus the time lost due to unfavorable weather may total considerably more than the actual flying time on a given tour. The loss of time due to the weather can be reduced only when the private plane is built and equipped for bad weather flying and the airports are developed to make such flying practical. Then, provided that pilots of private planes are sufficiently skilled and experienced, the grounded time of planes due to weather can be reduced.

A Plea for More Prompt and Comprehensive Planning

At the present time no American city, so far as I know, is planning its own salvation realistically. About a billion dollars' worth of post-war construction has been reduced to completed plans by our states and cities—less than half as much public construction as was carried on in the depression year of 1933. For the greater part, plans already drawn are for the most urgently needed public works; they do not look to thoroughgoing redevelopment.

Carefully planned future development of our cities will prove expensive. In the long run, however, it will be far less costly than a continuation of the unplanned, haphazard cycle of growth and decay which has been tolerated heretofore.

Major Gen. PHILIP B. FLEMING
Administrator
Federal Works Agency

(From a statement, January 11, 1945, before the Senate Sub-Committee on Housing and Urban Redevelopment.)

The development of Municipal Pier and other facilities along the 33-mile waterfront at St. Petersburg may encourage other cities to acquire neglected ownership of their own waterfronts with their potentialities for pleasure and dividends

Winning a Fight for a People's Shoreline

By JOSEPH LAWREN

A HARD-WON appropriation of $5,120 grudgingly voted by the City Council of St. Petersburg, Fla., in 1908 for purchase of four lots on the waterfront, and a bond issue of $1,000,000 approved by the citizens on October 7, 1925, have highlighted a long and difficult succession of municipal steps which turned an unsightly and unsanitary waterfront into one of the greatest assets of that tourist city.

So completely have opponents to public ownership of the waterfront disappeared that the popular cry of St. Petersburg today is, "Every foot of our entire 33 miles of waterfront must belong to the people."

Founded in 1888, washed by the rising and falling tides that sweep from the Gulf of Mexico into Tampa Bay, St. Petersburg's early waterfront was cluttered with shacks and ill-sorted buildings and with the debris constantly deposited and carried away by the uncontrolled sea.

Under the leadership of William L. Staub, who acquired the *St. Petersburg Times* in 1901, a crusade for public ownership of the waterfront was begun. In 1906 a Waterfront Committee was appointed by the Board of Trade, and with the approval of the City Council, it acquired that year four lots of waterfront property to hold pending city action. Public controversy was sharp until 1908, when the City Council voted its first appropriation to acquire these lots from the Committee. From that time development went steadily forward. By Christmas 1909, the city had acquired further waterfront property that Mr. Staub and his committee had purchased pending city decision. In 1910 a $10,000 appropriation for improvement of the waterfront was made, and Waterfront Park, the name given to more than four miles of waterfront property then owned by the city, was created. In 1910-1911, an additional $22,000 was appropriated for the Park and $45,000 was voted in 1911 for further purchases of waterfront land and for the construction of seawalls, the paving of drives along the Park, and for filling, grading and planting.

With the adoption of the Commission form of government in 1913, work of beautification went further forward, culminating in 1925 in a bond issue of $1,000,000 for the construction of Municipal Pier, jutting out from Waterfront Park into Tampa Bay. Opened on Thanksgiving Day, 1926, this Pier, reaching out from St. Petersburg's main business and residential section, is 1,700 feet long, 100 feet wide, with a pier head 300 by 400 feet, on which stands the Casino, the center of the social life of the tourist city. Here also is the Municipal Solarium, reputed to be the largest in the world.

The city now owns some 96 acres, making 9 separate parks all in process of development—outposts along the 33 miles of waterfront which the people of St. Petersburg hope eventually to weld into a continuous Waterfront Park comprising the city's entire bay-laved boundary.

Waterfront Park with its out-juttings into Tampa Bay.

TEN-POINT ESSENTIALS OF A PUBLIC RECREATION SYSTEM

1. ***Know your community***—the character and distribution of population, the traditions, needs, problems, resources of the community.

2. ***Pool your resources***—work together for full use of all potential assets—from public and private agencies, neighborhood groups, organizations, and individual leaders.

3. ***Check your legislation***—determine what legislation you need and what you have; and then, if necessary, work to get laws that provide an adequate legal base. Authority to develop public recreation depends upon State and local laws.

4. ***Establish a legal managing authority***—a responsible lay board with legal authority to administer the program, assuring recreation the community status it warrants.

5. ***Get good leadership***—insist on a trained, full-time executive, responsible to the board, on the job the year round, and subordinate leaders chosen with equal care on a basis of qualifications and training. Select and use competent volunteers within this framework of professional leadership.

6. ***Make the most of existing facilities***—municipally-owned schools, buildings, parks, playfields and playgrounds, and water areas. These may be supplemented by use of privately owned property.

7. ***Secure separate budget***—obtain a definite, adequate amount of public funds through special tax levy or other public appropriations, earmarked for the sole purpose of community recreation.

8. ***See that your program is community-wide, year-round, has broad appeal***—with interests for young and old, indoor and outdoor activities, sports, athletics, games, music, arts, crafts, drama, lectures, forums, social recreation, and community events.

9. ***Maintain public partnership***—keep popular opinion abreast of your program. Use all media available to interpret community recreation and win public support for it.

10. ***Plan for the future***—make a place for recreation in long-range town planning. Good planning should include not only physical facilities but also program, leadership, and finance.

A recreational decalogue by the Office of Community War Services of the Federal Security Agency, with marginal illustrations indicating some of the factors which have made these principles practical in one American community.

Community Recreational Programs a Post-War Must

COMMUNITY recreation is rapidly becoming a national consideration. There are few towns which are not thinking in some terms of leisure hour activities for their citizens. This movement has been greatly advanced in recent years by the Office of Community War Services, Federal Security Agency, which now summarizes its observations and recommendations in an admirable booklet, "Community Recreation Comes of Age."

Because its work, in meeting wartime emergencies, has been with almost every variety of American community, the Office of Community War Services recognizes that no one pattern will fit all towns. Generalization as to procedure is impossible, says Mark A. McCloskey, Director, but certain principles have been recognized in the evolution of community recreational planning. These have been set down as a new recreational decalogue, here reproduced, which community leaders may study to advantage.

Specific Example

To interpret and show how these principles have been applied in successful community programs, the OCWS has selected for description in this booklet the town of Decatur, Ill. Community recreation in Decatur began 34 years ago and has progressed under all sorts of conditions and against great odds. Today it has achieved "an outstanding success," says Mr. McCloskey . . . and mainly "because the people knew what they wanted."

Decatur, Ill.

Here is Decatur: A *population* of 59,305 which has increased 3,600 during the war; Negroes, 3 percent—an established, stable group; a small foreign element, mostly German.

Average family income: $2,502 a year; few luxurious homes; no blighted slums, but some substandard dwellings. An agricultural and industrial community with a small college, James Milliken University.

The town knows how to play, says Mr. McCloskey.

"A summer night may see 10,000 people, one out of every six of the population, on lighted play centers. Whole families come together to share the fun. While the youngest members play in the Tot Lot, their elders enjoy a ball game or swing to the fiddler's call on a square dance under the stars.

"On the softball field teams are at play—business men and women, or industrial workers, a game perhaps between teams of Negro women of two rival industries. The lookout is manned by a junior playground leader, who makes the announcements and between innings runs off music recordings. The refreshment stand in the center of the park does a land-office business in soft drinks and popcorn. In charge are two housewives, members of the Neighborhood Recreations Clubs, which have a vested interest in each playground.

"On seven of the fifteen playgrounds of the city floodlights pour upon people at play—skating, dancing, playing badminton, tennis. At one center several hundred spectators may have gathered to enjoy a citywide amateur night. In the courtyard of a housing project the municipal band gives an open-air concert. If it is another season, skating, badminton, and dancing have moved indoors; baseball on the night-lighted field becomes basketball in the school gym. A folkdance festival in a school auditorium or a play by a dramatic group draws as many spectators as the summer amateur night in the amphitheatre."

Recreation in Decatur springs out of the prairie soil, says Mr. McCloskey, and bears the imprint of the pioneers who cultivated it. There is a homespun quality about most of it—the way neighbors come together for corn and wiener roasts in the parks, or gypsy stew roundups in the fall over outdoor grills.

Decatur's Recreational Steps

1911—First playground—a lot cleared of tin cans and rubbish by a boys' club. Operated by the Railroad YMCA, and assisted by a mother's club.

1913—Two publicly owned playgrounds opened. Budget $150. Playground Association organized with $1 annual dues.

1915—First community center, "The Pines," presented by public-spirited couple for use by clubs under Railroad YMCA. Beginning of year-round recreation.

1924—Park Board created. *First* vote on referendum for a recreation tax levy, *Lost* by a large majority. "The Pines" also lost that year but the Pines Association was formed to salvage program, carried out on property lent by Park Board.

1927—Decatur rated as fourth city in Illinois in recreation. Park Board takes over expenses of supervisors' salaries and in 1928 much of recreational management and program.

1934—Community Recreation Association formed. *Second* referendum for a recreation tax levy *lost*, by a smaller majority.

1935—WPA project came to rescue of depression-hit program, bringing large-scale expansion of program and employment of full-time superintendent of recreation.

1935—Recreation swept through Decatur "like the winds off the prairie." Jobless men and women trained to be leaders for games, workshops, music and drama groups, to run community celebrations. A little theatre group started, an art shop, dancing classes, forum clubs. Twelve school and church gymnasiums opened for public use. Twenty summer playgrounds operated with 40 directors. Summer day camp opened.

1942—*Third* recreation tax levy, *approved* by vote of 2 to 1, rate 2/4 mill, the state maximum.

1943—Federal emergency funds withdrawn. *Fourth* referendum, *approved*, increased support of recreation from 2/4 of a mill to 11/4 mill, present state maximum.

The practical operation of this community program at Decatur is given at some length in "Community Recreation Comes of Age," available from the Federal Security Agency, Office of Community War Services, Division of Recreation, Washington, D. C. Some of the headings in this pamphlet are reproduced on the facing page.

In-Service Training in Governmental Planning

A NEW program of in-service training in governmental planning has been inaugurated by the Institute of Local and State Government of the University of Pennsylvania with an enrollment which includes more than a score of officials and other employees of various governmental units.

The Institute was established at the University in 1937 by the Samuel S. Fels Fund and has been maintained by the Fund since that time. It is under the direction of Dr. Stephen B. Sweeney.

The new 30-week planning program consists of an introductory seminar, "City and Regional Planning Objectives," and a companion seminar, "City and Regional Planning Practice," both conducted by Robert B. Mitchell, Executive Director of the Philadelphia City Planning Commission, assisted by Dr. Charles C. Rohlfing, Professor of Political Science and Chairman of the Department of Political Science at the University of Pennsylvania; Dr. J. Cass Phillips, an Assistant Professor in that department; Dr. George S. Koyl, Dean of the School of Fine Arts and Professor of Architecture at the University; Dr. Sweeney, Director of the Institute; and guest lecturers.

The program calls for three hours of classroom instruction and a dinner session each week, supplemented by assigned reading.

Heavily Patched Street Surfaces Revitalized

A new maintenance program of Dallas, Texas, provides smooth surfaces for bumpy brick, concrete and asphalt streets

By J. T. (TIM) CONROY
Director of Public Works
Dallas, Texas

WHEN some of our streets had been repaired to the point where the surfaced area of the patches was almost greater than the area of the original street surface, we knew that it was time to effect a more drastic method of street maintenance, because further patching would be too costly for the service we would get from the streets. Accordingly, we set up a comprehensive maintenance program to resurface a number of the badly worn major streets in the business and residential areas which we felt needed attention first.

We have just recently completed the first phase of this program of resurfacing with hot mix asphaltic concrete. The streets chosen for the first phase of this work included brick, portland cement concrete, and asphalt surfaces that were in bad condition. These streets had been in service for fifteen to thirty years and through constant use, the surface had become very rough and irregular. The expense incurred from continuous patching was becoming prohibitive, and the heavily patched streets presented a very poor appearance as well as an unsatisfactory riding surface, thus causing traffic to seek other routes on which to travel. Heavy traffic loads were being diverted from these major streets to already over-congested streets having smoother riding surfaces. And during peak hours, this congestion increased to such an extent that it assumed dangerous proportions.

The city planned a program to "revitalize" the old, worn thoroughfares by leveling and resurfacing them with hot asphaltic concrete. A number of streets were selected on the basis of their potential use as traffic arteries. Estimates were made, specifications compiled, and contracts awarded for approximately 17,000 tons of asphaltic concrete, the price ranging from $5.63 to $5.92 per ton for material complete in place. The original estimates were based on an average thickness of 1½ inches. However, with careful supervision, the actual thickness laid averaged approximately 1¼ inches for all the streets so treated.

The asphaltic mixture was selected because of its adaptability to various thicknesses of fill, and its finished nonskid surface.

The gradation requirements are:

FINE GRADED SURFACE COURSE

Passing	*Retained On*	*Percent*
⅝-inch screen		100%
½-inch screen		90% to 100%
½-inch screen	¼-inch screen	25% to 45%
¼-inch screen	No. 10-mesh sieve	15% to 35%
No. 10-mesh screen	No. 40-mesh sieve	5% to 25%
No. 40-mesh sieve	No. 80-mesh sieve	5% to 25%
No. 80-mesh sieve	No. 200-mesh sieve	5% to 25%
No. 200-mesh sieve		3% to 7%

The asphalt cement conformed to standard specifications for 85-100 penetration asphalt cement, and formed from 4½ to 7 percent of the weight of the mixture.

The roadway was thoroughly cleaned, and any unusually high spots on flexible base pavements were bladed down in preparation for the asphalt surfacing. Also, any unusual amount of asphalt over cracks or new patches was removed to prevent the asphaltic cement from bleeding through the new surface. A tack coat consisting of 85-100 penetration asphalt cut with 50 percent gasoline was then placed on the street with a power distributor at the rate of approximately .05 gallon per square yard.

When the tack coat had cured properly, the hot asphaltic concrete was mixed and hauled to the job, where it was dumped into a mechanical Adnun spreader. It was found that best results were obtained by placing the mixture in two layers. The first course varied considerably in depth—filling the depressions, covering over the "humps," and generally bringing the surface back to a state of uniformity. On one particularly rough street, the first course was dumped on the street, and spread with a blade. Very satisfactory results were obtained in this instance. The second course then completed the process by smoothing out the rough spots which were not completely removed by the first course. Each course was rolled thoroughly as it was laid, with a 10-ton, 3-wheel roller and an 8-ton Tandem roller.

The completed surface was laid over existing utility manholes, cleanouts,

Looking east along Gaston Ave. In the distance are The Foote Co.'s Adnun Spreader, an eight-ton Buffalo-Springfield Tandem roller, and following it an Austin-Western three-wheel roller.

On the left side is the badly patched street before resurfacing. The right side of the street has been resurfaced.

This is the same street shown in the illustration at the left after resurfacing the full width of the road.

and valves, with a small amount of material shoveled out before rolling. This was done with a view towards locating manholes and cleanouts later, when the utility companies raise their covers to the exact grade and tilt necessary to conform with the new crown. The contractor then filled in around the covers with the asphalt mix. This practice obviated the necessity for establishing the probable finished grade and tilt in advance, not to mention the difficulty in trying to meet the predetermined grade with the spreader. If the finished grade is off even a fraction of an inch, a rough spot would result.

The curbs and gutters on some of these streets were badly broken and so irregular that they obstructed drainage. Where these irregularities occurred, the topping was laid over the gutters, filling them to a grade that would drain. While correcting the drainage, this also improved the appearance of the street materially. In some places the grade was so flat that it was necessary to take levels and set new grades to which to lay the asphalt in the gutters. However, in most places, the spreading machine laid the asphalt to a satisfactory grade without the aid of engineering stakes.

The spreading operations did not greatly interfere with normal traffic. In order to do this the spreader covered a strip 8 to 10 feet wide. Sometimes this strip was run from 5 to 10 blocks before turning back on the next run to cover the other side. Traffic was kept out of the particular block in which the equipment was working, except those vehicles that were making industrial deliveries and performing other essential duties. After the spreader was moved on, the block was opened to traffic until the spreader returned for the next run. Traffic over the partly surfaced areas during operations did not mark or in any way influence the quality of the finished job.

The public reacted very favorably to the resurfacing. In fact, the great improvement in appearance as well as smoother riding surfaces gave sufficient proof that it was a timely expenditure of public funds.

The new surface will serve as a seal to prevent water from penetrating the subgrade, and should also serve to lessen subsequent subgrade movement. The relief from traffic congestion, which was becoming a serious matter, was, perhaps, the most valuable result of this maintenance program. For now that we have smooth resurfaced streets traffic has returned to its former habits of travel, congestion has been eliminated, and traffic hazards are gone.

Resurfacing with asphaltic concrete has proved to be a satisfactory and economical means of reclaiming old, worn streets. We find we have realized remarkable savings in maintenance costs. We are conducting studies now, and many other old and worn streets are being added to the list of our subsequent resurfacing programs.

Red Color Removed from Water

IF you encounter red water in your distribution system, according to T. L. Vander Velde, Assistant Engineer of the Michigan Department of Health, you should first determine whether the cause is dissolved iron naturally found in the water supply, dissolved gases, bacterial action, or a combination of the three.

In a report given at the Michigan Section meeting of the American Water Works Association, he pointed out the vraious means of detecting and removing the cause of red water. The various types of water and the method of eliminating them are as follows:

Iron. When found in water in quantities greater than 0.3 ppm it should be removed by aeration and filtration, by the Zeolite process, or by removing the CO_2 by the lime-soda softening process which precipitates the iron. In the case of the aeration-filtration process under pressure, stabilization of the CO_2 is necessary to prevent corrosion of the mains. This may be accomplished either by re-aeration or by the addition of sodium hydroxide or soda ash.

Dissolved Gases. Soft water with excessive amounts of free CO_2 are responsible for metal corrosion. Free CO_2 occurs in soft waters with low bicarbonates or low pH values. The free CO_2 is eliminated by adding an alkali such as sodium hydroxide, soda ash, or lime. Particular difficulty is encountered in hot water systems when excessive heat liberates CO_2 and O_2. This is controlled by either lowering temperatures to between 140°-150° F. or by the addition of chemicals, such as sodium silicate or sodium hexametaphosphate.

The Iron Bacteria. Crenothrix and gallionella and similar organisms cause a red water nuisance. A microscopic examination is necessary to determine their presence. Growth of these bacteria may be checked by treatment with a 50 ppm chlorine solution, but after such treatment a small chlorine residual is necessary to prevent a recurrence.

"It should be emphasized," said Mr. Vander Velde, "that an investigation to be complete should determine the cause or causes, and on these findings operators should decide the method of treatment, and give the treatment a complete and fair trial."

Mayor William J. Hannon and his daughter Grace using one of the 585 parking meters that performed for Danbury, Conn., the services described by the Mayor on the facing page.

Parking Meters Cut Tax Rate

Danbury's 580 meters collected $122,700 in four years, paid four-fifths of the police department budget and reduced the tax rate from 10 to 9½ mills besides clearing up a snarled traffic problem.

By WILLIAM J. HANNON
Mayor of Danbury, Conn.

PARKING meters were installed in Danbury, Conn., as a last resort in the search for a solution to a condition of traffic congestion which had become the foremost local topic of conversation and an election issue. Had the meters merely relieved this condition there would have been rejoicing on the part of the city officials, the State Motor Vehicle Department, the citizens, and the motoring public. They did this and so much more besides that the story was told in detail recently in *The Danbury News-Times.*

Three trunk highways converge in the business center of this city of 25,000 population. Judge Martin J. Cunningham ran for Mayor on the issue of studying and solving the problem of traffic and parking congestion which had already cost the taxpayers more than $10,000 without results. One engineering study costing that much alone had recommended a bypass including a bridge, to cost $2,000,000, to take traffic off Main Street. The new Mayor, and the writer who was then City Clerk, decided that solution of the parking problem would end the traffic jam. Visits to other cities showed that the way to reduce curb parking was to install parking meters.

What Kind of Parking Meters?

What type of parking meter? Penny? Nickel? The city felt that the motorist should pay in accordance with the time he required at the curb, and the multiple-coin Miller meter made by the Duncan Meter Corporation, Chicago, Ill., was installed, 480 meters at first and then 100 more. This meter had the feel and appearance of sturdiness. How has it stood up during these four years? Under the care of Joseph Murphy, chief mechanic of the Department of Streets, the cost for *parts and maintenance* has been as follows for the 12-month period July 31 to August 1:

COST FOR PARKING METER PARTS AND SERVICE

1940	$386.20
1941	416.00
1942	608.89*
1943	615.55
Total cost	$2,026.64
Factory parts (materials)	757.37
4 years labor	$1,269.27

Average Annual Cost

Labor	317.32
Parts	149.25**
Total	$466.57

* 100 additional meters installed in 1942.
** Not including $160 worth of parts still on hand.

Thus at an annual cost of less than a dollar per meter, Danbury has been controlling traffic as well as parking and paying 80 percent of the police department budget from the proceeds. The annual cost of operation has amounted to less than 1 percent of collections. Of the $122,700 four-year total, each meter averaged $232, or more than 3½ times its original cost. This was due not only to the larger turnover of cars, and therefore of pennies and nickels, but also to the low cost of parts and maintenance.

The successful operation of these meters made possible a reduction in the city tax rate from 10 mills to 9½ mills for 1942, 1943, and 1944.

Signals for Coming Traffic

AT each major intersection or street corner in years gone by stood the familiar blue uniformed policeman wearing clean white gloves. His hand would go up as a signal for STOP. Oncoming cars stopped while traffic on the cross street passed until he reversed the signal. At the busiest corners the policeman stood with a hand sign, one sign reading GO and the other STOP. He moved the signal as traffic warranted. While there was nothing automatic in this operation, no studied timing, there were the definite signs plus a human being to elaborate them if necessary.

Ever since those manual days there have been efforts to incorporate in modern traffic signals certain additional directives. One of the most interesting of these innovations is the Aroway signal illustrated here. Its principle is all in the directional unit which takes the place of the present GO signal. In place of the present signal which simply gives permission for traffic to move, the new Aroway signal substitutes a directional unit which tells the motorist in what directions traffic is permitted to move and in what directions it is not permitted to move. This is accomplished by means of green arrows indicating those directions which are free to traffic movement and red block bars indicating those directions which are closed to traffic.

The various faces of the signal are so made that the proper face for any particular intersection is available, that is, one which forbids a left turn, one which forbids a right turn, one which forbids movement straight ahead, or, on the other hand, one which permits movement only to the right, only straight ahead, or only to the left, or one which clearly indicates that movement is permissible in all directions (viewed, of course, from only one or two faces of the signal). The meaning

Aroway Traffic Signal

of the Aroway signal can readily be discerned by those who cannot read English and by the color-blind. It does away with need for such worded signs as "one way street," "no left turn," "no right turn," etc.

Persons per Intersection

At the close of the war, and in the early post-war years especially, there is bound to be very considerable activity in the selection and installation of traffic signals and traffic-signal systems. Now certainly is the time to study the problem in each town and to understand the devices which will be available for solution.

Earl Allgaier, Traffic Research Specialist of the American Automobile Association, says of traffic signals and the size of a city: "There is a wide variation among cities in each population group as to the number of signals being used. Cities that depart radically from the average of 2,000 persons per signalized intersection might well consider whether their deviation from the normal is justified. It is assumed that the cities reporting in our recent traffic signal study are typical of the cities in each population class. Below is our summary."

PERSONS PER SIGNALIZED INTERSECTION

Population Group	Cities Reporting	Total Population	Total Signalized Intersections	Mean	Persons per Signalized Intersection	
					Minimum	Maximum
Under 10,000	33	256,105	131	1,802	617	...
10,000-25,000	24	382,314	202	1,893	585	...
25,000-50,000	17	612,004	374	1,636	630	17,600
50,000-100,000	14	989,699	433	2,286	1,380	6,600
100,000-500,000	17	3,846,918	2,173	1,770	1,140	3,800
Over 500,000	3	2,293,007	1,043	2,198	1,420	4,900
Total	108	8,360,087	4,356	1,919		

An Airline for Yourville

By GENE KROPF
Instructor, Aviation Operations Engineering
Parks Air College, East St. Louis, Ill.

OF all the plans for post-war municipal buildings, pavements, public works, utilities and airports, it may be that the last will be first in revolutionizing many of these municipal activities. Consider the Local Service Airline offering air service to cities not being served by the major airlines and providing connections to seat 18 to 20 people. Most of the operators propose joint passenger, mail, and express service with trips leaving at the proper time of day to accommodate the community.

"So what? How does that affect my city or town?"

In the first place the town will have to pay the cost of the construction and maintenance of the airport to serve the community.

Now, definitely, is the time for practical municipal planning because the feeder system is already in operation in some parts of the country.

"Can our community afford to support such an airport and such a service?"

Trade Areas

Right in your own community, there are many potential users of such a service who probably themselves do not realize it now. Most smaller towns do the major part of their business with somewhat larger cities located within the trade area for that section. With the Local Service Airline, communities spaced as far as 200 miles apart would only be two hours away, instead of as much as a whole day away. Remember this works both ways and opens the doors of the industry in your community to all the trade centers in your area while making your own area accessible to others. The many advantages of locating a factory or plant in a smaller community are well known to all, but transportation often prevents capital from making the move.

Time Saver

With speedy and adequate service assured, the attraction of the small town for industry becomes natural. Even under present conditions, most small cities have numerous small plants that find it necessary daily to dispatch representatives to the larger cities. Much valuable time is consumed in making these trips, with possibly higher overhead and reduced production. This same time-utility factor is also important to each and every citizen of your community, whether he is going to visit friends over the weekend, take in the annual football classic at the state university, or take a trip purely for pleasure.

Thus far, we have been speaking in terms of passenger traffic. What about the mail and express picture? While, as American citizens, we point with pride to our mail service, it is a fact that many communities today do not have as good a service as was provided by the pony express. Local Service Airlines will provide additional service to the one-a-day type in many of the smaller towns. All first class mail may go by air after the war.

Air express opens up many new channels for trade. The term "air express" is not too good, however, since, once again, we are apt to think in terms of ground transportation. Instead, let us call it "air freight" or "air cargo." We now have to think of air express as a fast means of shipping only those items that are rush shipments or possibly perishable items. After the war, almost any item can be shipped by air, bringing new markets only a few hours away.

Factory Markets

Factories located in the smaller communities will then have the answer to their biggest problem — placing their product on the proper market at the proper time. The shipping problem has been one of the main objections to industry settling in the smaller town. With Local Service Airline facilities, these communities are only a few hours away from most markets and only overnight from any market in the United States. Four-a-day service would furnish the immediate post-war needs of most factories in the smaller communities.

Communities failing to realize that this new development is at hand may find themselves in the same position as those which failed to provide good roads and proper facilities for the automobile in its early struggles. Will "Yourville" be a part of this important post-war development?

TITLE	AUTHOR	PUBLISHER	SCHOOL	BOOK CODE	GRADE	CLASS	YEAR	TOTAL BOOK	USABLE	REBIND	DISCARD	CODE
ADVENTURES IN ARITH WRKHKUPTON		AMER	28	1160	6	10		24	24			
ADVENTURES IN LITERATURE HOSS		HAR B	28	1450	7 2	1	27	24	24			
ADVENTURES IN LITERATURE HOSS		HAR B	28	1450	7 2	1	28	24	24			
ADVENTURES IN LITERATURE HOSS		HAR B	28	1450	8 2	1	27	24	24			
OUR WORLD CHGS ADV IN SCIPOWERS NEUNERGINN			28	1610	H	12	40	15	15			
DAY IN & OUT ALICE&JERRYDUONN CAREY		ROW P	2H	2200	1	1	36	19	19			
DOWN RIVER RD ALICE&JERRYDUONN CAREY		ROW P	2H	2210	2	1	36	20	20			
FRIENDLY VILL ALICE&JERRYDUONN CAREY		ROW P	2H	2220	2	1	36	19	19			
HERE & THERE ALICE&JERRYDUONN CAREY		ROW P	2H	2230	1	1	36	18	18			
IF I WERE GNG ALICE&JERRYDUONN CAREY		ROW P	2H	2240	3	1	36	23	23			
NEIGHBORHOODS ALICE&JERRYDUONN CAREY		ROW P	2H	2250	1	1	36	18	18			
ROUND ABOUT ALICE&JERRYDUONN CAREY		ROW P	2H	2260	1	1	36	19	19			
ROUND ABOUT ALICE&JERRYDUONN CAREY		ROW P	2H	2260	1	1	35	15	15			
AMER IN MKG FROG NATION CHAUSEY REIN		HEATH	2H	2650	7	6	37	38	38			
AMERICA IN MKG GROWTH NATCHAUSEY REIN		HEATH	2H	2H00	H	6	2H	31	31			
AMER BEGINNINGS EUROPE	GURDY	SCRIB	2H	3100				2	2			
AMER PEOPLE & NATION	TYRON L							45	45			
AMER PEOPLE & NATION								2	2			
AMERICAS								58			58	
AMERICAS								4			4	
AMER MARCH TOWARD HEMIS								40	40			
GREAT CONQUEST ATLNTC								26	26			
GREAT CONQUEST ATLNTC								26	26			
OUTWARD BOUND ATLNTC								21	20		1	
OUTWARD BOUND ATLNTC								20	20			
WONDERFUL TUNE ATLNTC				5550	5	1	26	24	24			
BEGIN AMER PEOPLE&NATION		GINN	2H	6900	4	6	30	10	10			
BIRDS CHRISTMAS CAROL	HIGGIN	H MIF	2H	7200	6	1	16	20	20			
BOBBS MERRILL PRIMER	BAKER	BOB M	2H	7500	1	1	29	37	27		10	
BOOKS MERRILL READER GR 1	MAKER	BOB M	28	7510	1	1	30	20	20			

A check on textbooks used in Bridgeport schools is kept by master report sheets giving full information regarding the books. Data on new books is recorded on punched cards and at certain periods additions are made on the record sheets from these cards.

Perpetual Inventory of Textbooks Helps City and Schools

By PERRY W. RODMAN
City Comptroller
Bridgeport, Conn.

THE law requires that the city of Bridgeport furnish textbooks to its children in the public Elementary schools, also Junior and Senior high schools. For a number of years after this law first went into effect, expenditures for textbooks were very heavy. At that time the attendance of the schools was 26,000 or 27,000. It was most certainly an expensive proposition to put this law into effect. The law dates back into the early 1920's, and until three years ago no one was able to tell how many books were in the school system; whether these books were in good, usable, or poor condition; what subjects were covered specifically; and no list was available for making scientific use and allocation of the books. Some schools were overstocked, others understocked. Some schools had certain titles available to every two or three pupils, and other schools had more than enough to go around; but neither the time nor means of straightening this situation out was available, even had the desire to do so been present.

About three years ago we had to have this information, exact and factual. A thorough inventory of all textbooks was made under the direction of the Comptroller, using each school's staff. The questions were (1) title of the book, (2) publisher, (3) a description of the book, (4) what grade it was used in, (5) the number of classes using it for the particular school, (6) number usable, (7) number to be rebound or (8) discarded. This information was punched into a special card. This card was sent out in the form of a questionnaire and contained spaces for all these data to be written in. It now forms our basic master file for textbooks. The finished report sheet, shown here, is set up by schools, as you will note from the designation, School 28. This particular card has to do with the Alice and Jerry book, author Donn Cahey, publisher Howe Peterson; School 28; Book Code 2200. This last is important for the reason that in sorting the books down by titles, it is better to sort on the number. This then gives the title and also the type of book, such as literature, mathematics, languages. The listing continues: the book was used in Grade

1, copyright year 1936, total books 10, usable 10. The master list for the Superintendent's Office is then broken down by schools so that each school has a list of the books supposed to be in that school, and their condition.

After this set-up is in effect, books when being ordered from the publisher are designated for certain schools, and the invoices come through with the supporting data showing that the books have actually been delivered. Cards are then punched from this information so as to keep the list accurate. At the end of a period a new work list is run by schools. This is sent to the schools, and the principal and her teachers are asked again to check this list against the books actually on hand. In this way it is possible to account for all books and, more particularly, the efficiency with which these books are being used. It is perfectly obvious that if the school has 40 copies of a particular book and requires only 20 then 20 are available for use in another school. There is presumed to be a formal transfer of these books to another, and a copy of that transfer is sent to the Comptroller.

This method of textbook control is also valuable in that it records in one place all the books in use throughout the school system. It forces an accounting for all books, so that loss through theft, wanton destruction, or carelessness can be cut to a minimum. It is also a deterrent to the overbuying of books. Sometimes this is the result of overzealousness on the part of educational officials, but more often it is the result of pressure by publishers' salesmen. An inventory such as this is an aid in keeping the textbook supply up to certain physical standards. The periodic checkup makes it mandatory for those responsible to determine whether the books are usable or not usable and whether or not the rebinding would help. An order to rebind 3,000 books will get a better price than an order to rebind 100 books. In the matter of discarded books, these are usually set to one side and the adjusted inventory figure for discards is checked by the Comptroller or his representative, with the actual books to be discarded. The average cost of a book is one dollar and some odd cents. It does not take long to run discards into money.

This method has been applied to textbooks only, but soon it will be applied to library books also.

Quick Photo Copies of Maps and Letters

By H. G. TRIPP
Electric Power Board
Chattanooga, Tenn.

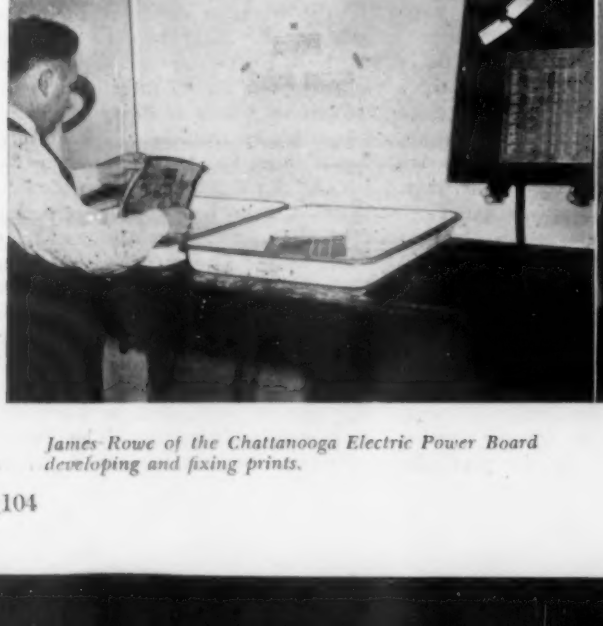
OUR new photo copying equipment reproduces any printed or pictorial matter up to 18 by 22 inches. A readable negative can be produced in one operation, or with two processes, a positive can be given exactly like the original. While copies of letters or price sheets are the main run of duplications, other types of reproductions constitute a large portion of the work. These include maps and sketches of rush work for the Line Department, copies of pages out of magazines desired in multiple, and rush material which would take much time for retyping or redrawing.

When the equipment came from The American Photocopy Equipment Co., 2849 N. Clark St., Chicago 14, Ill., a small janitor's room in our Distribution Building was found to have all the necessary requirements: hot water to bring temperature of water wash to 60 to 75 degrees in cold weather, electrical connection (110 volts), no glaring outside light, and enough space. Plans were drawn for a table on which to set the developer and fix trays with a sunken sheet metal sink and gate-valve drain, and they were built and installed by our own company shop mechanics.

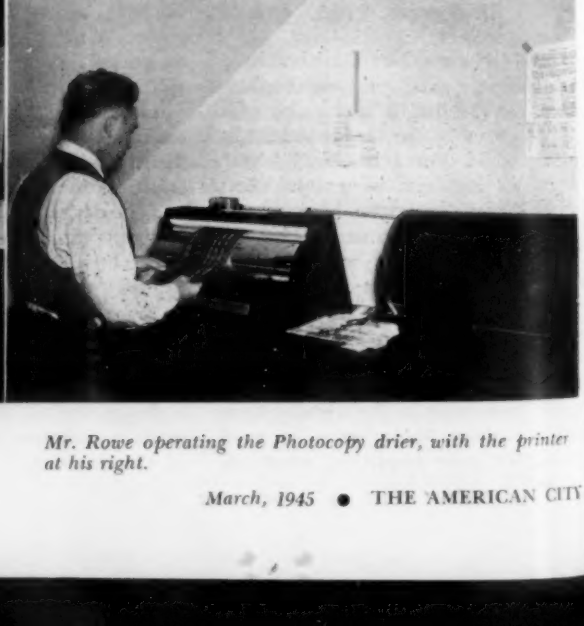
The printer is merely a round translucent tube in a sturdy plywood housing. There is light inside and a flexible cover. Material to be copied is placed on the operating surface, together with the photocopy paper (the relative position of the coated surface of the photocopy paper to the subject matter determines the type print received). The contact cover is closed and the light switch pressed, exposing the copy for a few seconds.

Next the paper goes into the developer tray, where a small can of chemicals has been mixed with two quarts of water. In a few seconds the image appears and the paper is moved into the tray of fix for a permanent finish. After about three minutes in the fix, chemicals are washed off in the plain water tray, excess water is removed on a squeegee board, and the print goes into the dryer.

It is surprising how simply and quickly we turn out our own copy. The simple rules and graphic illustrations which accompany the equipment, are easily followed, and the average clerk can make prints without previous photographic knowledge.



James Rowe of the Chattanooga Electric Power Board developing and fixing prints.



Mr. Rowe operating the Photocopy drier, with the printer at his right.

Wartime Water Rates—XVII

Four interesting rate schedules appear this month. One features a Victory Garden rate and one has lower and one higher rates than those previously published in *The American City*.

Baker, Oregon

Rates:

1,000 cu. ft. to 15,000 cu. ft., $1.00 per 1,000 cu. ft.

Over 15,000 cu. ft., $.75 per 1,000 cu. ft. per month, on metered water and a residential minimum base rate of $.50 per month.

Special reduced summer rate for vegetable growers: within the city limits: first 1,000 cu. ft. per month, $.50; from 1,000 cu. ft. to 15,000 cu. ft. at $.80 per 1,000 cu. ft.; over 15,000 cu. ft. at $.75 per 1,000 cu. ft.

All water is metered and bills are overdue after the tenth of each month.

General Data:

Population served—9,342
Number of services—2,700
Number of meters—2,650
Number of hydrants—263
Miles of water main—39
Miles of carrier pipe lines—28
Supply—springs and streams
Treatment—chlorination and ammonia
Average consumption—968,768 gallons per day
Storage capacity—Goodrich Reservoir, 120,300,000 gallons; Other Reservoirs, 5,000,000 gallons

Consumer Costs Per Month:

3,000 gals.	(400 cu. ft.)	$0.40
5,000 "	(667 " ")	0.67
10,000 "	(1,333 " ")	1.33

Our special wartime feature of the victory garden rate has resulted in raising our water consumption and boosting the income of the water department. The result to the consumer has been more water at lower cost.

W. P. Smith
Water Commissioner and Superintendent

Lorain, Ohio

Rates:

First	6,000 cu. ft.	13c per hundred
Next	12,000 " "	11c " "
Over	18,000 " "	7c " "

Meter Charge

⅝"	meter	$ .15 per month
¾"	"	.35 " "
1"	"	.50 " "
1½"	"	1.15 " "
2"	"	2.00 " "
3"	"	4.00 " "
4"	"	6.00 " "
6"	"	12.00 " "

General Data:

Population served—50,000
Number of services—10,000
Number of meters—9,800
Number of hydrants—825
Miles of main—110
Supply—Lake Erie
Treatment—Rapid sand filtration
Tap water—85 ppm $CaCO_3$
Plant capacity—13 mgd
Average consumption—4.5 mgd

Consumer Costs Per Month:

3,000 gals.	(400 cu. ft.)	$ .67
5,000 "	(667 " ")	1.00
10,000 "	(1,333 " ")	1.74

This represents about a 30 percent reduction of rates carried in The American City for December 1935.

T. W. Morgan
Cashier

Kansas City, Mo.

Rates:

Inside the City Limits:

First	2,000 cu. ft.	17c per 100 cu. ft.
Next	2,000 " "	16c " " " "
"	3,000 " "	15c " " " "
"	3,000 " "	14c " " " "
"	5,000 " "	13c " " " "
"	5,000 " "	12c " " " "
"	10,000 " "	11c " " " "
"	20,000 " "	10c " " " "
"	50,000 " "	8c " " " "
"	400,000 " "	7c " " " "
Over	500,000 " "	6c " " " "

Minimum $.50 per month irrespective of meter size.

Fire protection service $12.00 per year per service.

Outside the City Limits:

First	6,000 cu. ft.	22c per 100 cu. ft.
Next	54,000 " "	16c " " " "
Over	60,000 " "	8c " " " "

Minimum Monthly Charges

⅝"	meter	$ .75
¾"	"	1.25
1"	"	2.00
1½"	"	3.50
2"	"	6.00
3"	"	9.00
4"	"	13.50
6"	"	27.00
8"	"	37.50
10"	"	60.00
12"	"	82.50

General Data:

Population served (in city limits)—440,000; (outside city limits)—85,000
Services—93 percent metered
Hydrants—10,400
Miles of main—875
Supply—Missouri River
Treatment—Aluminum sulphate or ferric sulphate as coagulants, lime and soda ash for softening
Tap water—90 ppm total hardness of which 50 ppm is carbonate and 40 ppm non-carbonate pH 10.0
Average consumption—60 mgd
Plant capacity—150 mgd

Consumer Costs Per Month (in city limits)

3,000 gals.	(400 cu. ft.)	$ .68
5,000 "	(667 " ")	1.13
10,000 "	(1,333 " ")	2.26

Originally one schedule of rates which had been in effect since 1928 applied to all customers. In 1941, the rates stated above were made to apply to water sold outside the city limits; these rates are about one-third higher than rates applying to sales within the city. In 1942 the city completed improvements to its existing treatment plant which will reduce the hardness of the water supplied from an average of 215 ppm to about 90 ppm. These improvements were paid for out of Water Department revenue.

M. P. Hatcher
Director

Pendleton, Oregon

Water Rates:

Domestic:

3,500 gals. or less, $1.00 minimum

All over 3,500 gals., 15c per 1,000 gals. up to and including 100,000 gals.

All over 100,000 gals., 12c per 1,000 gals. up to and including 1,000,000 gals.

All over 1,000,000 gals. per month, .075c per 1,000 gals.

Manufacturing rates:

$12.00 per month minimum, which allows for the use of 100,000 gals. of water per month

$0.10 per 1,000 gals. for all over 100,000 gals. up to and including 1,000,000 gals. per month

$0.075 per 1,000 gals. for all over 1,000,000 gals. per month.

Meter Rent

1"	meter	$1.00 per quarter year
1¼"	"	1.50 " " "
1½"	"	2.00 " " "
2"	"	2.50 " " "
3"	"	4.00 " " "
4"	"	6.00 " " "
6"	"	19.50 " " "
8"	"	36.00 " " "

General Data:

Population served—15,000
Number of services (100 percent metered)—26,000
Number of hydrants—140
Supply—Mountain stream infiltration
Treatment—Chlorination and ammonia
Tap water—35 ppm $CaCO_3$ pH 6.4
Average consumption—3½ mgd
Plant capacity—5¼ mgd

Consumer Costs Per Month:

3,000 gals.	(400 cu. ft.)	$1.00 (min.)
5,000 "	(667 " ")	1.38
10,000 "	(1,333 " ")	2.00

This represents an increase of about one-third over rates previously recorded in The American City for June 1940. We expect to go into the post-war period in good working condition. Rate revised in 1941 by not allowing any discount up to the 10th of the month. Previously 0.25 was allowed if paid by the 10th of the month.

J. L. Vaughan
Superintendent

Correction: Lynchburg, Va.

Consumer Costs published in the February issue of The American City were in error. These figures should have been:

4,200 gals.	(560 cu. ft.)	$1.20
5,000 "	(667 " ")	1.43
10,000 "	(1,333 " ")	2.86

R. D. Wright
Acting Superintendent

(See page 123 for a list of Wartime Water Works Projects. See also pages 77 and 82 for other stories covering this field.)

Thirty More Cities Report Post-War Plans

This is the seventeenth report of plans by cities for post-war improvements to be published in THE AMERICAN CITY since November 1942. A series of fourteen reports, ending in June 1943, included replies from 541 municipalities of over 10,000 population to a questionnaire regarding their plans for post-war public works and other improvements to be undertaken when materials and manpower become available again.

To secure reports from municipalities which were not ready to answer the original inquiry, a second request for information is currently being sent to cities in this population group. In the issues of January and February 1945, 73 replies were published, and 30 more are recorded this month. The present questionnaire—differing slightly in its wording from the original one—makes these six inquiries:

1. *If your city has begun to plan for public works or other municipal improvements to be undertaken when materials and manpower are available, what are the principal types of projects contemplated and approximate cost of same?*
2. *Which of these plans have reached the "blue-print" stage?*
3. *What responsibilities and powers does your City Planning Commission have as to post-war planning?*
4. *Has your city adopted a "capital budget"?*
5. *If your city is setting aside any reserves, in war bonds or otherwise, for post-war public works, what is the present total of such reserves?*
6. *Is your community planning a War Memorial? If so, what type?*

Where answers to questions 2, 4, 5, or 6 are omitted, this indicates either that the reply was in the negative or that no definite action has yet been taken.

Allentown, Pa.

BRIGHTON C. DIEFFENDERFER, Mayor:

1. Sanitary sewerage ($1,000,000); sewerage treatment ($350,000); street paving ($3,250,000); storm drains ($2,600,000).
2. Sanitary sewerage, street paving, storm drains.
3. Recommendation only.
6. Yes. Subject under discussion by various civic clubs as to what form it will take.

Altoona, Pa.

G. STANLEY RUTH, Sec.-Mgr., Altoona Chamber of Commerce:

1. Sewage plant; safety building.
3. Recommendation only.
5. The city is reducing its bonded indebtedness, thereby increasing its borrowing capacity for post-war work.
6. A library and a municipal stadium are being contemplated.

Anaconda, Mont.

P. T. O'BRIEN, Mayor:

1. Our city is in no financial condition to undertake any new commitments.

Astoria, Ore.

BREWER A. BILLIE, City Manager:

1. New library and museum building ($75,000); new municipal shop and warehouse building ($35,000); new chlorination equipment for water supply ($25,000).
2. Municipal building and chlorination equipment.
3. Advisory only.
5. $50,000 for shop and chlorination equipment.
6. The library and museum building may be so classified.

Bloomfield, N. J.

FLORENCE E. ROBERTS, Secretary to the Mayor:

1. Community center ($500,000); roads ($194,000); storm sewers ($225,000); sanitary sewers ($75,000); river improvements ($2,600,000).
2. Some in process.
3. Must give approval.
6. Yes. Our community center Second World War Memorial is awaiting official ratification by the Town Council and its provision of sufficient capital funds for immediate completion of design. The project will then be assigned to the Board of Recreation Commissioners with full authority to complete the design in order that construction drawings and specifications may be "on the shelf" ready for use when required.

Charlotte, N. C.

H. H. BAXTER, Mayor:

1. New public library ($500,000); two new fire departments ($100,000); war memorial ($1,500,000); extension of city limits ($500,000); city sewerage extension ($1,000,000); city-county market ($250,000), street improvements ($500,000).
3. Planning and recommending to City Council.
6. Yes. A War Memorial-Civic Center.

Clifton, N. J.

WILLIAM A. MILLER, City Manager:

1. Flood eliminations; sanitary sewers; street paving; sidewalks and curbs; water main extensions; public buildings; recreation centers and parks ($18,000,000).
3. Location of recreation and park areas, opening of new streets, new property developments, etc., are under its jurisdiction.
4. Estimated capital budget amounts to $21,452,000. No copies available.
5. $93,176.98. If the budget is adopted: $141,676.98.

Concord, N. C.

WALTER D. BROWN, Attorney and Treasurer:

1. Streets; sewerage; water works; city hall.
2. Water works.
5. None as yet, but there will be bond issues.

Cuyahoga Falls, Ohio

T. H. SAUTER, City Engineer:

1. Street improvements—paving and storm sewers ($75,000); city building—site as yet unselected.
2. Street improvements.
3. Special post-war planning committee appointed by council.

Faribault, Minn.

F. W. MCKELLIP, City Engineer:

1. Disposal plant ($225,000); fire station ($128,500); municipal garage ($10,000); water distribution ($157,000); sanitary sewer system ($83,000); curb gutter and sidewalk improvements ($73,000); class III airport ($275,000); storm sewer ($93,000).
2. Paving; water mains; sanitary and storm sewers; airport; (private) face lifting on Main Street.
3. All authority is invested in the Council.
5. $50,750 in war bonds.

Gastonia, N. C.

H. RUTTER, City Manager:

1. Water ($167,000); electric ($75,000); sewers ($115,000); city hall ($89,000); abbattoir ($100,000); parks and playgrounds ($90,000).
2. Abattoir and city hall.
3. The City Council is the planning commission.
5. $225,000.

Helena, Mont.

JOHN J. HAYTIN, Mayor:

1. Replacement of water lines and additions; Memorial park ($25,000).
2. Memorial park.
3. Entire responsibility.
5. Nothing has been set aside for the Memorial. There is $30,000 for the water lines.
6. Park and playgrounds.

Huntington, N. Y.

WALTER FASBENDER, Supervisor:

1. Road and traffic improvements.
3. We have a Planning Board and it is its duty to see that post-war plans comply with the town master plan, and to work in cooperation with the Huntington Township Post-War Committee.
6. Permanent Honor Roll and possibly a sport stadium.

Village of Mamaroneck, N. Y.

W. H. JOHNSON, Village Manager:

1. Relaying existing flagstone walks ($75,000); municipal recreation stadium ($45,000); completion of sea wall ($88,000); new 12-inch and 16-inch sewer line ($50,000); development of Harbor Island ($45,000); new drains and catch basins ($60,000); widening, deepening and cleaning out of Mamaroneck River ($55,000).
2. All.
3. Suggestions, plans, sketches, etc., are submitted to Board of Trustees and approved by them.
6. No such plans at the present time.

New Rochelle, N. Y.

STANLEY W. CHURCH, Mayor:

1. Sewer and drains ($2,000,000); sewage disposal plant ($700,000); city hall ($400,000).
2. Stephenson Brook Drain ($2,000,000).
3. Expansion and lay-out of the city.
6. Subject at the discussion stage, with a memorial field appealing to the majority.

Niagara Falls, N. Y.

CHARLES W. COLLISON, Secretary, Planning Board

1. Two fire halls ($122,000); police headquarters building ($130,000); sewers ($203,000); water mains ($31,500); water works storehouse and yard ($200,000); bridges ($110,000).
2. Fire halls, police building, bridges, sewers and water mains.
3. Advisory.
5. Tax stabilization fund ($100,000).

Norwood, Ohio

FRANK J. WARD, Mayor:

1. Streets; sewers; war memorial; water works expansion.
2. Streets and sewers.
6. Yes.

Okmulgee, Okla.

T. J. DEAN, Mayor:

1. Access road to airport; city auditorium; extension of water mains.
2. Access road.
3. At present the Mayor is chairman of the countywide post-war survey now under way.

Portsmouth, Ohio

JOHN M. SALLADAY, Mayor:

1. Sewage ($782,500); public buildings ($270,000); streets and roads ($510,000); water works ($435,000); bridge structures ($25,000); miscellaneous ($165,000).
2. Water works and public buildings plans are 90 percent complete.
3. None other than the approval of subdivisions, war memorials, parks, streets, etc.

Royal Oak, Mich.

E. J. GRIFFELS, City Engineer:

1. Department of Public Works building ($150,000); sewers ($200,000); water main extension ($225,000); street widenings and paving ($397,000); 300-bed hospital—joint project of 12 communities ($1,250,000).
2. Department of Public Works building plans complete and the sewers, water main extension and street improvements finished in part.
3. Advisory capacity.
4. Public Improvement Ordinance passed on January 2, 1945, by the Commission of the City of Royal Oak established a Public Improvement Reserve Fund ($19,344.27).
5. $20,000.
6. Rainbow Granite monument—$7,500.

St. Clair Shores, Mich.

HELEN MIHLADER, Treasurer:

1. Sewers ($700,000); garage ($20,000); curbing and gravelling of some streets (estimate unavailable).
2. Sewers.
3. The Village Commission gives the final approval on all proposals.
5. $18,000 raised by taxation. In 1943 a .095 spread, in 1944 a .090 spread.

Salem, Ore.

I. M. DOUGHTON, Mayor:

1. Sewer disposal ($500,000); city parks and playgrounds.
2. Sewer disposal.
5. 3 mill tax levied last election.

Shawnee, Okla.

T. E. THOMPSON, City Manager:

1. Sewage disposal plant ($250,000); garbage incinerator ($100,000); sanitary and storm sewers ($200,000); paving repairs and resurfacing ($200,000); other improvements ($100,000).
2. Sewage disposal plant.
3. No City Planning Commission in effect.
4. Not permissible under Oklahoma laws.
5. See 4 above.

Village of Scarsdale, N. Y.

REEVES NEWSOM, Village Manager:

1. Water works reinforcements and extensions ($450,000); storm water drains ($230,000); sanitary sewers ($60,000); highway widening and paving ($140,000); public buildings ($480,000).
2. Preliminary plans completed for all, with final plans completed or under way for parts of all the projects.
3. General approval of highway improvements and plans.
5. The Water Department has $180,000 available in reserve.

Shaker Heights, Ohio

E. P. RUDOLPH, Director of Finance:

1. Garage and refuse disposal plant ($100,000); street widening ($45,000); playgrounds ($20,000).
3. Advisory only.

Steubenville, Ohio

H. D. HERBST, City Engineer:

1. Street construction and reconstruction ($1,750,000); water works—relief and stand-by construction ($200,000); sanitary and storm sewers and sewer extensions ($1,375,000); underpass and related structures ($475,000).
2. In six months' time, entire program can be ready for contracts—contingent upon manpower and finances.
3. Recommendation to City Council for adoption.
6. No. The County may erect a war memorial—project still in discussion stage.

Stillwater, Okla.

L. E. MCCONKEY, Mayor:

1. Water supply; addition to municipal electric plant; storm sewers; garbage incinerator; airport buildings; water and sewer line extensions; improved street lighting ($1,000,000).
2. Water system and generating equipment.
3. Zoning; supervision of new additions; width of streets, etc.; recommendations as to water and sewer line extensions.
6. Municipal Park and Golf Course.

Swampscott, Mass.

PHILIP E. BESSOM, Chairman of Selectmen:

1. Roads and railroad bridge.
3. Planning only.

Teaneck, N. J.

PAUL A. VOLCKER, Municipal Manager:

1. Public buildings ($172,000); bridges ($736,000); streets and sidewalks ($675,300); parks and recreation ($350,400); new Fire Headquarters, district fire houses, apparatus and extension of fire alarm system ($426,800); sewage ($749,300); garbage incinerator ($100,000).
3. Advice as to priority location and extent of projects.
5. No reserve, but paying off present indebtedness at fast rate.
6. Tentative plans are for a community center.

Union Township, N. J.

WILLIAM W. FRIBERGER, Clerk:

1. Addition to Fire Headquarters ($35,000); in addition to municipal garage ($30,000); new Police Headquarters ($45,000); additions and alterations to Day Nursery building ($7,500).
4. No capital budget, but we contemplate enacting ordinances to raise funds through issuance of bonds.
6. Yes. Site definitely secured, but type as yet not decided upon.

Vicksburg, Miss.

JOHN L. HYLAND, City Engineer:

1. Improvements to school buildings; fire stations; constructions of new concrete bridges; improvements to municipal airport; parks and playgrounds; extension of sanitary sewer system and construction of new streets.
3. We have no City Planning Commission.
5. The city is purchasing war bonds and has reserve funds in Gas and Water systems, but at this time they are not set aside for capital improvements.

Watertown, N. Y.

FRED E. O'BRIEN, City Engineer:

1. Buildings ($102,000); sewers ($213,000); bridges ($15,000); water mains ($150,000); street extensions ($15,000); pavements ($200,000).
2. Buildings; sewers; bridge widening.
3. Advisory.
4. Being compiled.
5. $26,500.
6. City is discussing taking over USO building and dedicating this as a War Memorial.

Texas Cities Win Fight Against Proposal for Homestead Exemption

CONGRATULATIONS are in order to Bill N. Taylor, City Manager of Port Arthur, Texas, for a very able statement, presented in behalf of the municipalities of Texas, in opposition to a proposed $3,000 homestead exemption amendment to the constitution of that state, and for the subsequent action of the House Committee on Constitutional Amendments in voting unanimously against this proposal.

In his brief Mr. Taylor set forth facts and arguments to show that homestead exemption would mean either ultimate municipal bankruptcy on the one hand or curtailment of essential service on the other. "Either of these extremes," he pointed out, "would seriously imperil the existence of local government in Texas."

Citing his city as an example, the Port Arthur City Manager showed that of the total assessed valuation of land, improvements, and personalty in that municipality for the fiscal year 1944-45, amounting to $30,341,000, homestead exemptions under the threatened constitutional amendment would total $11,700,000, resulting in a loss in taxes of $222,300.

Free Lots for Veterans

ON February 20 a special committee of the City Council of St. Petersburg, Fla., submitted recommendations for procedure under the previously enacted resolution for giving to returning veterans certain lots which had come into possession of the city through foreclosure of delinquent taxes and special assessment liens.

To make the offer of free lots as fair to all St. Petersburg veterans as possible, it is proposed that the effective date of the city's offer shall be as soon after the close of the war as general building is permitted to resume locally; that to be eligible the veteran must first qualify under the G.I. Bill of Rights to build a home; and that all applications by veterans to procure lots under this plan shall be processed under the Real Estate Board of the city—a municipal board which handles the acquisition and disposition of municipal property.

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At present our service cannot always be as fast nor our stocks as complete as under normal conditions. Nevertheless, stocks are large and deliveries generally satisfactory. The latest Ryerson stock list describes our complete line—more than 10,000 kinds, shapes and sizes of steel. This buying reference is a veritable steel user's "book of knowledge." It gives descriptions, sizes, weights, specifications and cutting extras for every kind of steel. Your nearby Ryerson plant will be glad to furnish you a copy. Use it for a guide to Ryerson stocks—your surest steel source.

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California Surveys Her Opportunities

Since 1940 CALIFORNIA HAS-
+ GAINED more than 1,700,000 PEOPLE
+ GAINED more than 600,000 FAMILIES
+ RECORDED births of more than 700,000 BABIES
+ GIVEN 700,000 men and women to ARMED FORCES
+ GAINED approximately 1,000,000 civilian JOBS
+ RECEIVED 19 billion dollars in WAR CONTRACTS
+ DOUBLED its total annual INCOME
+ GAINED $660 yearly per capita INCOME
+ GAINED three new BASIC INDUSTRIES
- LOST tens of thousands of RETAIL STORES
- LOST its peacetime TOURIST TRADE
- LOST 50 million dollars of yearly GOLD PRODUCTION
After the War CALIFORNIA WILL-
+ HAVE nearly 9,000,000 PEOPLE
+ HAVE 200,000 more SCHOOL CHILDREN
+ WELCOME home 700,000 of ITS OWN VETERANS
+ WELCOME hundreds of thousands of OUT OF STATE VETERANS
+ HAVE nearly 4,000,000 WORKERS
- LOSE over 700,000 wartime JOBS
+ HAVE possibly 600,000 UNEMPLOYED
- LOSE 3 billion dollars annual total INCOME
+ HAVE 2,000,000 more CONSUMERS
+ REGISTER a million more MOTOR VEHICLES
+ HAVE 80% of its people in URBAN AREAS
- FACE the threat of slums in EMERGENCY WAR HOUSING
Therefore CALIFORNIA NEEDS to-
x ENCOURAGE land development by PRIVATE ENTERPRISE
x CREATE more than 1,000,000 new peacetime JOBS
x ENLIST the abilities of wartime INDUSTRIALISTS
x DEVELOP 90 billions in RESOURCES
x RESTORE and enlarge its MINING INDUSTRY
x EXPAND its great RECREATION INDUSTRIES
x INCREASE domestic and foreign TRADE
x BUILD annually at least 120,000 NEW HOMES
x COMPLETE and modernize HIGHWAYS
x PROVIDE an adequate system of AIRPORTS
x PROVIDE another third more elementary schools TEACHERS
x BUILD 10,000 more SCHOOL ROOMS
And CALIFORNIA CAN-
= ACHIEVE A HIGHER STANDARD OF LIVING
= SUPPORT a population of more than NINE MILLION
= MAINTAIN 5,500,000 peacetime JOBS
= RETAIN most of its wartime ECONOMIC GROWTH
= USE its larger and better trained WORK FORCE
= DOUBLE its present INDUSTRIAL PRODUCTION
= LEAD in the development of AVIATION
= DOUBLE its present TOURIST INDUSTRY
= HAVE better housing and better planned COMMUNITIES
= ELIMINATE slums and redevelop BLIGHTED AREAS
= CONTINUE to grow and absorb large MIGRATIONS
= LINK the Nation with the ORIENT

A glimpse of California—War and Post-War—presented by the State Reconstruction and Reemployment Commission

WHEN California passed its Reconstruction and Reemployment Act in 1943, the Legislature expressed a *positive* concept of the responsibility of state government, according to the State Reconstruction and Reemployment Commission in its first report of findings up to December 31, 1944.* The Act recognizes that people live in an environment of industrial, commercial, and physical activity, and that it is a function of their state government to improve this setting, positively, progressively, and realistically. It emphasizes the obligation of the state as an agency of the people to achieve for the people as a whole those results which they desire but which they cannot accomplish as individuals—to protect their personal rights and welfare. Instead of a negative type of protection, the Legislature has courageously given the Commission a mandate for positive action, including the word "promote" consciously in its directions. The Commission is not only to collect and analyze data, and to formulate plans and programs, but to endeavor to "get something done."

The primary interest of the California Legislature in passing this Act, according to the Commission's report, was to contribute toward a solution of employment problems which will exist when the war effort has been completed. Its purpose was not to create a million state jobs, but to further a program of cooperation between the state government and other public and private agencies to effect the purpose of the Act.

Help of Self-Interest Organizations Sought

The Commission—instructed to conduct research, to formulate and promote plans, and to encourage development—realized that the most intelligent and successful promotion of any plan will be undertaken by those who have an intelligent self-interest in carrying out the plan. The cooperation of self-interest organizations was, therefore, sought and more than 600 individual citizens from the ranks of labor, industry, and other groups have accepted definite responsibilities in cooperation with the Commission, serving without recompense on committees, and working to carry through programs seen in the broader view of the state.

These citizens include the 45 members of the Citizens Advisory Committees created by the Act, and those cooperating with the Commission through nearly 30 Project Committees. The Citizens Advisory Committees, manned by many of the strongest men in the state, deal with the following fields: Public Works; Development, Preservation, and Restoration of Industry; Redevelopment of Trade and Service Establishments; Coordination of Research Facilities; Development of Natural Resources; Agriculture; Social and Industrial Welfare; Readjustment Education; Demobilized Service Men and Women. The Project Committees (Aerial Mapping, Apparel Industry, Aviation, Forestry, Mining, Riding and Hiking Trails, Education—Post-War Objectives, Silk, and some 20 others) in turn enlist citizens from diverse groups including local government officials, local labor union officials, industrial and financial executives, educators, engineers, lawyers, social workers, farmers, and others.

Cooperative Planning and Promotion

Even at this early date, the Commission declares its satisfaction with this method of cooperative planning and promotion. It has found that new ventures are already receiving the encouragement and assistance essential to the bold steps such as the post-war challenge will require in every field after the war.

Considerable research has already been done, more is under way, but hand in hand with it special steps are being taken toward practical developments. "The extent to which the standard of living is raised in California after the war," says the Commission, "will, of course, depend in part upon national and international economic conditions. But it will depend even more upon the initiative, enterprise, and resourcefulness of Californians themselves."

Has California struck another gold field—one whereby democracy can actually be made to work for the good of all without sacrificing private enterprise?

* Report and Recommendations, California State Reconstruction and Reemployment Commission, 631 J Street, Fifth Floor, Sacramento 14, Calif.

If your present or postwar plans call for large diameter pipe and special fittings why not avail yourself of the advisory service of our technical staff? Out of our long experience we are frequently able to suggest adaptations of design principles which have proved efficient and economical in other installations. Our facilities are extensive and include a specialized plant for the production of fittings.

Drawn for U. S. Pipe & Foundry Co. by Peter Helck

Victory Gardens—An Urgent Community Responsibility

By GROVER B. HILL
Assistant Administrator
War Food Administration

THE response of our urban people to the call for Victory gardens has been truly phenomenal. Between 12 and 13 million town and city families grew Victory gardens last year. They helped wonderfully in assuring the nation adequate food supplies. This is especially significant also because health is a first consideration in wartime. These Victory gardens did make for better health because of the greater quantities of vitamin and mineral-rich food they yielded.

Many thousand city families living in congested areas were able to have gardens only because local Victory garden leaders located for them available vacant lot areas where each family could cultivate a plot large enough to supply their needs for fresh vegetables. Chicago, Milwaukee, Cleveland, Boston, Indianapolis, San Francisco, Omaha, and many other cities have developed community garden opportunities to a remarkable degree. Chicago has one large area in which 1,300 garden plots are cultivated by 800 families. Middletown, Ohio, a manufacturing city of 30,000, boasts that four out of every five families had gardens. This was largely possible because of the many community gardens established, and because practically every factory made community garden space available for its employees. Many industrial concerns in other cities, likewise, have made employee community gardens available for their employees, and helped them in various ways with their gardening.

Local Leadership Needed

Now before us again is the need for everyone who can find garden space to have an adequate garden. Prudence, as well as a wholehearted response to the patriotic appeal of our President to help meet the nation's food supply in this way, should dictate that everyone who can find garden space should cultivate a garden this year. We are especially concerned about making more opportunities for our people to have gardens, for many of them live in areas of the city where garden space is at a premium. Our recent nation-wide survey of Victory gardens showed that of the non-farm gardens, only 46 percent of the foremen, skilled workers, semi-skilled workers and laborers had Victory gardens last year. The experiences of some of our large cities would seem to show that the community garden is an answer to this problem. We hope that all garden committees and garden leaders, and all who are sponsoring the Victory garden movement will seek every opportunity to make more community gardens available to our urban dwellers.

A well-supervised community garden usually insures that some of the garden work is made easier and that the vegetables grown are better in quality. That is due to the fact that the ground is better prepared through community effort, or with the help of park boards or city councils in fertilizing the garden plots. Also the plots are larger usually than the ordinary backyard affords and the gardeners have an opportunity to grow more vegetables, and in sufficient variety. Furthermore, in many such gardens the problem of watering during dry periods has been taken care of by city water and fire departments. Then, too, where several families work side by side there is an opportunity to give better instruction and through the exchange of experiences and information, individual gardeners learn more than they otherwise might, especially if they are beginners. Above all, too, there is a spirit of competition resulting in each gardener doing his best.

Under Secretary of Agriculture Grover B. Hill shows the kind of corn that grows in his Victory garden.

Vacant Lots Into Green Oases

The community gardens do more than make it easier for city people to have more of their own supply of vegetables. They transform ugly ill-kept vacant lot areas into green oases. There grows a larger appreciation not only of the values to be had in producing food or wholesome recreation, but also of the part that gardening can play in enriching life. Naturally out of all this garden experience in a community garden should come a heightening of interest in community and town improvement and beautification.

We hope the community gardening will continue to develop. To meet wartime needs, we should have many more community gardens. They fill a great need in supplying city people with larger quantities of healthful foods.

(See also pages 15 and 82 in this issue)

Why Waste Coal Ashes?

THE coal ashes now being thrown upon city dumps can be used to great advantage by municipalities for the improvement of soil in parks and parkways, and golf courses, and for maintaining the life of turf that is subjected to heavy public use, according to an article appearing in the January 1945 issue of *Progress Guide*.

The list of chemical substances found in coal ashes reads like a chemical dictionary. Among the substances essential to plant growth are hydrogen, oxygen, nitrogen, phosphorus, carbon, potassium, calcium, magnesium and sulfur. Also needed for plant health, and found in coal ashes, are cobalt, boron, tin, copper, iron, iodine, manganese, and zinc. There are also many other substances mentioned which are helpful in reasonable quantities.

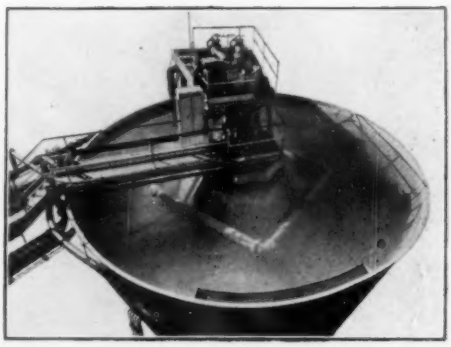
The article states that Dr. R. C. Johnson of the Mellon Institute of Industrial Research found about 35 naturally seeded trees, shrubs, berry bushes, flowers, and grasses growing in a large bank of anthracite ashes in Nanticoke, Pa. Thus, the importance of using coal ashes as fertilizer was brought to public attention more by accident than by design.

The amount of ashes needed depends on the character of the soil. A relatively small amount would suffice for phosphorus needs of ordinary soils, while clay soils would require a mixture up to 25 percent of ashes.

IT'S A BETTER PLACE to live, work and play. Because, you see, *this* city has *soft* water—conditioned by Permutit*.

Permutit removes the hardness and other impurities found in city water supplies, makes the water soft, clear, iron-free. It brings new luxury, labor-saving and cleanliness to every family in town... attracts new business and industry. Hundreds of modern cities have found this out after installing Permutit equipment.

Make *your* city a better place to live in! Write *now* for details to The Permutit Co., Dept. G-3, 330 West 42nd Street, New York 18, N. Y. or Permutit Co. of Canada, Ltd., Montreal. *Trademark Reg. U. S. Pat. Off.



PERMUTIT SPAULDING PRECIPITATOR removes water hardness, dirt and color by the sludge blanket process. This new-design equipment cuts detention time, saves chemicals, takes only half the space of former methods. Present installations handle capacities up to 120,000,000 gallons daily.

PERMUTIT

SOFT WATER for modern cities

WATER CONDITIONING HEADQUARTERS

Madison Studies New Sources of Revenue

UNDER the able chairmanship of Professor Harold M. Groves of the University of Wisconsin, a Special Citizens Committee on New Sources of Revenue for Madison, Wis., has submitted a 40-page mimeographed report.

Calling attention to the fact that municipalities generally have been seeking new sources of revenue, partly because of demands for enlarged services and partly because of the belief that the property tax is overworked and inequitable, the report summarizes its major findings as follows:

Enlarging the Property Tax Base

The property tax base could be enlarged by the consolidation of Madison and some or all of its suburbs. These suburbs frequently exploit the city by using its services free or at less than cost. In many cases, however, a consolidation would be mutually advantageous. The city might protect itself from exploitation by charging at least the full cost of extra-territorial services where this is practical. The city's very large amount of tax-exempt property might well be required to bear its full share of direct charges for municipal services where such charges are possible.

Sewage Disposal Tax

A special charge for sewage disposal (probably based on water consumption) would save the taxpayers approximately $200,000 and would provide at least as equitable a distribution of burden as the general property tax. It would enable the city to collect some revenue from tax-exempt property—particularly that owned and operated by the state government. There is no valid reason why this service should be provided to state institutions "free."

Public Utilities

Many cities have spared the property taxpayer by the successful operation of public service enterprises. Municipal undertakings at present are exempted from federal and state income taxes and from state and county property taxes. Where, in addition, a utility has a substantial profit, the city has an especially favorable prospect.

Shared Taxes

Cities have fared badly in the distribution of some shared taxes—notably motor vehicle taxes. The state income tax could be more fairly apportioned if the municipality in which wage and professional income is earned, instead of the municipality in which the taxpayer resides, were to receive the apportioned tax.

Income Tax

Of additional direct taxes for the city, by all odds the most promising, considering the desirability of the city being able to act on its own initiative, is a municipal income tax similar to that applied in Philadelphia, with some adaptations. This would afford an opportunity to collect some revenue from those who use city services and reside in the suburbs. With a 1 percent rate, such a tax in Madison could yield from $600,000 to $1,000,000.

Public Improvements

Many advantages could be gained were the city to finance future public improvements on a "pay-as-you-go" basis. Some suggestions as to ways and means of doing this are included in this report. A reorganization of city government to provide fewer departments, more centralized executive control, an executive budget, and advisory boards, could substantially raise the level of efficiency in the operation of the city's public affairs.

Metropolitan Transit Authority Proposed for Chicago

By resolution adopted February 27, the City Council of Chicago endorsed the proposal of Governor Dwight H. Green and Mayor Edward J. Kelly for the creation by the Illinois Legislature of a Metropolitan Transit Authority with power to acquire and operate all local transportation (except steam and electric interurban railroads) in Metropolitan Cook County. This would include Chicago and about 85 other municipalities.

The Authority would be administered by a Transit Board consisting of seven members of which the Mayor of Chicago would appoint four and the Governor of Illinois would appoint three, but all seven members must be mutually acceptable to both.

The Authority could issue and sell revenue certificates or other evidences of indebtedness payable *solely* out of transit revenues. It would fix fares, transfer privileges, and all other matters relating to service. It would have no taxing powers, and no authority to pledge the faith and credit of the state, county, or any city or village.

Each municipality would retain the right to offer or refuse the Authority a franchise for local operation within its boundaries.

The Plan would be subject to approval by referendum of the people affected.

State Commerce Department Aids Local Planning

THE New York State Department of Commerce through its Bureau of Planning has inaugurated a service to municipalities interested in sound community development. For the original test a small upstate industrial community was selected and provided with an educational program which led to the formulation of practical planning machinery.

Five Community Forums

At the invitation of local civic leaders, the Bureau arranged a series of educational forums dealing with post-war problems. The residents of the village showed a keen interest as they listened to an explanation of the meaning of community planning. From the first forum the community was stirred by the realization that *action depends on wide interest and capable leadership.* Those attending enthusiastically went about selling the idea to village officials, the Superintendent of Schools, teachers, merchants, civic organizations, local ministers, and other key citizens.

Attendance doubled at the second forum where the *need for planning business development* was discussed. Movies and brief talks proved the necessity of business to a prosperous community. The next forum focused attention *on the activities of public agencies and private organizations* in another important field of community life—*social welfare.*

The fourth forum dealt with *zoning and physical planning.* In this particular village the railroad tracks are to be moved to the outskirts after the war. The people were curious concerning the effect of this change on the layout and design of the community. A planning authority talked on making the village more desirable and attractive, a better place in which to live and work. The last forum concerned full utilization of educational and cultural facilities, providing *recreational and entertaining programs* for both the young people and adults of the community.

Forums Lead to Action

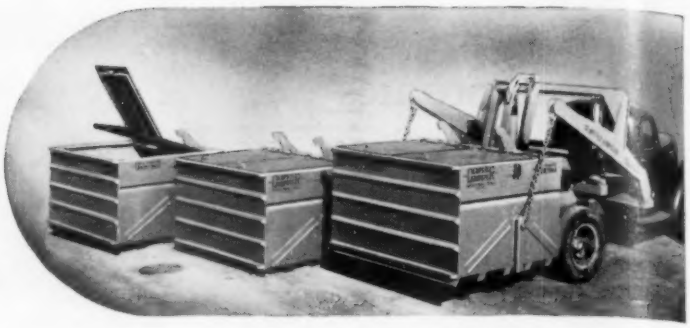
At this fifth meeting, a committee was selected to recommend adequate community planning machinery to the Mayor. The Mayor was impressed with the interest stimulated. Advised by a representative of the Bureau of Planning, he recommended setting up two village planning organizations: a Citizens' Planning Council and an Official Planning Board. The Citizens' Council, a group of representative citizens, organized to gather ideas for community improvement, serves as a clearing-house for suggestions coming from organization meetings and individuals. Acting in an advisory capacity to the village Board of Trustees, the Official Planning Board translates the Council's ideas into action consistent with its latest plan of the village.

This teamwork between official and unofficial planning groups has developed into an ideal method of preparing the community for post-war development.

STEWART H. JOHNSON

★

HERE'S THE SURE WAY TO CUT COSTS OF MUNICIPAL TRASH AND RUBBISH COLLECTION



★ Place Dempster-Dumpster bodies in the congested areas of your city . . . at the office buildings, department stores, shops . . . in the alleys where trash and rubbish accumulates so rapidly . . . at central points in group housing or apartments . . . wherever a 6 to 10-cubic-yard body need be placed.

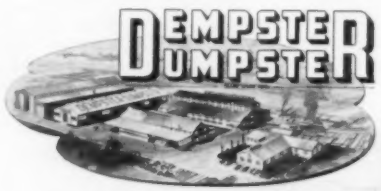
Then only one of your present trucks, equipped with a Dempster-Dumpster Hoisting Unit, is necessary to service 50 to 100 of these bodies at regular intervals. Loaded bodies are hoisted, hauled and dumped automatically from driver's seat . . . one truck, one man, doing the work of several, with tremendous savings in trucks, gas, tires, manpower and with trips cut seventy-five per cent.

This is the Dempster-Dumpster System . . . the way so many cities and towns are cutting deep into this large expense item.

Dempster-Dumpster Trash and Rubbish bodies are built in three different types—Flat Top with self-balancing lids as shown on this page; Pyramid Top, with hinged doors at ends, and Roll Top . . . all attractively painted in subdued colors and easy enough for a child to open and close.

The Dempster-Dumpster system is so welcome and worthwhile that many cities find stores and shops glad to purchase their own Dempster-Dumpster body.

No other trash and rubbish collection plan can touch the simplicity, convenience and low cost of the Dempster-Dumpster System. Let a Dempster representative give you complete details at once.



Illustrations on this page tell the operating story of the Dempster-Dumpster.

Top right shows a loaded body ready for hoisting. Shown also in this photo is the special twin, self-balancing, spring hinged tops on this particular body.

Center Photo shows loaded body in carrying position.

Bottom Photo illustrates instant, or controlled, dumping method of the Dempster-Dumpster bottom-dumping type of body.

Types of bodies available are unlimited. Your requirements determine the design. Cooperation of our engineers with those of the customer has corrected hundreds of materials handling problems and at tremendous savings.

Dempster Brothers, Inc., 335 Springdale, Knoxville 17, Tenn.

Smoothing out the Kinks

(Concluded from page 86)

All these and other plant improvements together with special operating techniques have produced excellent operating results. Analyses show an average removal of 93 percent suspended solids, 93 percent of BOD and 99+ percent settlable solids with a relative stability of the final effluent at 99+ percent. Among regular and unexpected work, operator training classes, inspections, experiments, working out improvements, there is never a dull moment at this sewage treatment plant.

Operation of the plant is under the jurisdiction of Lt. Col. M. A. Higgins, Post Engineer. The author is plant superintendent and Clyde M. Hopkins is plant chemist. The author wishes to acknowledge the assistance given him by Major Rolf Eliassen, C. E., Chief, Sanitary Engineering Section of the Ninth Service Command, Fort Douglas, Utah, in the preparation of this article.

"Not Merely in Terms of Bricks and Mortar"

"Housing is more than the designing and building of houses, for the house is the smallest unit in the complex capital equipment which is necessary if men, women and children are to carry out easily and efficiently the great variety of activities which makes up human life. The house, therefore, must be seen, not as an isolated unit, but as an integral part of a much greater whole, as part of a neighborhood, of a town, of a region, each of which possesses some sense of unity and common life.

"The expert in housing and town planning must, therefore, possess a great range of interests and sympathies. He must be able to realize the importance to the housewife of the height of the kitchen sink and at the same time to know how big a population is necessary to maintain a university or a theatre. He must see his task, not merely in terms of bricks and mortar, or even of design and layouts, but rather in terms of providing an adequate environment for a satisfying life."

—From the Foreword, by H. C. Coombs, Director-General, Ministry of Post-War Reconstruction of the Commonwealth of Australia, to "We Must Go On," a Study in Planned Reconstruction and Housing. "Our thesis," say the authors of this important little volume—F. O. Barnett, W. O. Burt, and F. Heath—"is that we have achieved a civilization rich in means which should be directed to worthwhile ends. To achieve those ends we cannot proceed empirically or by instinct. Progress is not an accident."

Where Credit Is Due

The study for the Detroit Civic Center, reproduced on the front cover of THE AMERICAN CITY for January, was made for the Detroit Plan Commission by Suren Pilafian, A.I.A., whose name was inadvertently omitted in that issue.

The Municipal Bond Market

THIS month, in place of the usual list of recent bond sales, THE AMERICAN CITY is reproducing parts of a tabulation by the Chemical Bank & Trust Company of New York, showing a 12-year comparison of prices and yields of twenty selected municipal bonds.

The complete tabulation, available in pamphlet form, embraces about 200 state, city, and authority issues. It is cumulative since its inception in 1933, and thus covers the complete swing of all issues from the record lows of 12 years ago to recent record highs.

The pamphlet also has a table showing the average December quotations from 1933 through 1944 of all issues having maturities of 10 to 25 years.

TWENTY SELECTED BONDS

Average Prices and Yields

December, 1933	98¼	— 5.18%
December, 1934	108¾	— 3.84%
December, 1935	117⅝	— 3.15%
December, 1936	124¾	— 2.65%
December, 1937	119¼	— 2.94%
December, 1938	124	— 2.53%
December, 1939	125⅛	— 2.29%
December, 1940	131⅜	— 1.73%
December, 1941	126⅜	— 1.96%
December, 1942	125¼	— 1.88%
December, 1943	127⅛	— 1.55%
December, 1944	126¼	— 1.35%

TWENTY SELECTED BONDS

(Geographical cross section of entire list)

			December 1933		December 1938		December 1943		December 1944	
	Rate	Due	Price	Yield	Price	Yield	Price	Yield	Price	Yield
Birmingham, Ala.	4½%	1957	70	7.15%	114½	3.45%	128⅛	2.10%	128⅝	1.90%
Phoenix, Ariz.	4½	1950	64	8.65	112	3.25	103	3.97	106	3.30
San Francisco, Cal.	4½	1963	96	4.75	127	2.95	143¼	1.85	141⅜	1.85
Hartford, Conn.	4	1950	103	3.75	123¼	1.75	119⅞	.85	117¾	.70
Jacksonville, Fla.	5	1950	96	5.35	121	2.85	122⅜	1.35	121⅜	1.00
Atlanta, Ga.	4½	1956	107½	4.00	132½	2.25	136¾	1.30	135⅜	1.20
Louisville, Ky.	4½	1968	101	4.20	143	2.25	150⅝	1.70	149¼	1.70
New Orleans, La.	4½	1950	84	6.05	116	2.85	119⅞	1.30	118⅜	1.00
Minneapolis, Minn.	4	1950	96	4.35	117	2.30	117½	1.20	116⅛	1.00
Omaha, Nebr.	4	1950	97½	4.20	122¾	1.80	119⅛	.95	117¼	.80
New York City	4¼	1981	84	5.15	120½	3.34	134¾	2.75	137½	2.64
Rochester, N. Y.	4¼	1956	95	4.60	133	2.00	131⅞	1.45	132⅛	1.25
Raleigh, N. C.	4½	1950	65	8.50	110½	3.40	118½	1.50	117⅛	1.15
Cincinnati, O.	4½	1955	104	4.20	135	2.00	134¾	1.25	134¼	1.05
Tulsa, Okla.	4½	1952	94	5.00	122¾	2.50	126⅜	1.20	124⅞	1.05
Pittsburgh, Pa.	4½	1953	104½	4.15	127¾	2.25	127½	1.40	126⅛	1.25
Dallas, Texas	4½	1950	94½	5.00	121	2.40	121⅜	1.05	119	.95
Richmond, Va.	4½	1960	106½	4.10	140¼	2.15	143¾	1.50	143⅞	1.35
Spokane, Wash.	4	1950	84	5.50	117	2.30	118⅞	1.00	117	.85
Wheeling, W. Va.	5	1950	99½	5.05	123¾	2.60	123⅜	1.25	121⅜	1.00
Average Price and Yield			92¼	5.18	124	2.53	127⅛	1.55	126¼	1.35
Average Maturity			21½ years		16½ years		11½ years		10½ years	

City Manager Appointments

LT. COL. L. V. BEAN, who has been in military service since July 1941, has returned to his former post as city manager of Waycross, Ga. The position has been vacant since C. E. Layton moved to Thomasville, Ga., last June.

E. K. BURTON, an engineer with the Oregon State Highway Department and previous manager of Silverton, Ore., from 1941 to 1944, has been appointed first city manager of Nyssa, Ore.

H. R. FULLER has been appointed acting city manager of Coronado, Calif., to replace Paul B. Wilcox who resigned.

H. C. MCCREA, city manager of Silverton, Ore., since April 1944, and manager of Blairsville, Pa., from 1934 to 1944, has accepted the post as first city manager of Coos Bay, Ore.

GEORGE J. ROARK, who has been on military leave since August 1943, serving as a captain in the military government service in Italy, took over his old post as city manager of Pensacola, Fla., on January 1. A. E. Langford had been serving during the leave.

R. K. ARNOLD, mayor of Duncan, Okla., has been appointed acting city manager to serve until after the March election.

CLARENCE E. RIDLEY
Executive Director
International City Managers' Association, Chicago, Ill.

After Victory...

change DANGER streets to SAFE streets

DESIGNED to meet the needs of cities large or small, residential, suburban, or industrial areas . . . and actually put into limited production just before the war . . . these durable and attractive all-steel tapered street lighting standards may be just what *you've* been looking for.

They're built to the same high quality specifications as Union Metal's more elaborate and ornamental types, but simplification of design and construction, coupled with volume production economies, make it possible to offer them at a considerable reduction in price.

For complete details, write The Union Metal Manufacturing Company, Canton 5, Ohio.

with these New, LOW-COST street lighting standards

UNION METAL

Largest Producers of Street Lighting Standards

Outdoor Lighting

STREETS AND HIGHWAYS

Some Post-War Street Lighting Plans

CITY	LAST MAJOR IMPROVEMENT	POST-WAR PLAN: Entire New System	POST-WAR PLAN: Traffic Streets	POST-WAR PLAN: Business District	PREFERS: Lower Rates	PREFERS: New System	REPORT FROM
Adrian, Mich.	....		Some			x	Com. Pub. Safety
Akron, Ohio	1943		x	x	x		Highway Eng.
Alpena, Mich.	1940						City Mgr.
Anderson, Ind.	1914	x	x	x		x	Supt.
Ann Arbor, Mich.	1923					x	City Eng.
Appleton, Wis.	1933						City Electr.
Ashtabula, Ohio	1938					x	City Mgr.
Aton, Ill.	1937					x	City Eng.
Bedford, Ind.	1937					x	Mayor
Benton Harbor, Mich.	1942			x		x	City Eng.
Birmingham, Mich.	1929						City Mgr.
Bloomington, Ind.	1937						City Eng.
Cairo, Ill.	1924		x	x		x	Mayor
Calumet City, Ill.	1928		x	x		x	Mayor
Cambridge, Ohio	....				x		City Clerk
Canton, Ill.	1938				x		Mayor
Centralia, Ill.	1923		x	x	x		City Eng.
Connersville, Ind.	1938		x				Supt. Water & Light
Champaign, Ill.	1929	x					City Eng.
Chicago, Ill.	1942		x	x		x	Com. Streets & Safety
Chicago Heights, Ill.	1924						Mayor
Cincinnati, Ohio	1941		x			x	Dir. Pub. Utilities
Cleveland, Ohio	1943	x	x			x	Com. Street Ltg.
Columbus, Ohio	1936				x		Dir. Pub. Service
Crawfordsville, Ind.	1941		x	x		x	Supt.
Cudahy, Wis.	1936			x		x	Mayor
Dayton, Ohio	1941	x				x	Dir. Pub. Service
Detroit, Mich.	1941	x	x			x	Com. Street Ltg.
Dixon, Ill.	1935	x				x	Mayor
E. Cleveland, Ohio	1922				x		Cirt. Electr.
Eau Claire, Wis.	....					x	.....
Ecorse, Mich.	1934						City Eng.
Elkhart, Ind.	1937		x				City Electr.
Euclid, Ohio	1935						Deputy Auditor
Evanston, Ill.	1932					x	City Traffic Eng.
Evansville, Ind.	1938					x	Law Dept.
Fort Wayne, Ind.	1940						Gen. Supt.
Fostoria, Ohio	1928		x	x		x	Mayor
Galesburg, Ill.	1935				x		City Electr.
Garfield Heights, Ohio	....		x		x		Mayor
Godhen, Ind.	1935		x			x	Supt.
Grosse Pointe Park, Mich.	1924			x		x	City Mgr.
Hamtranck, Mich.	1929	x				x	City Eng.
Harvey, Ill.	....			x			City Clerk
Highland Park, Mich.	1936					x	Supt. Pub. Service
Holland, Mich.	1932			x			City Clerk
Jackson, Mich.	1938						City Mgr.
Jacksonville, Ill.	1939	Some	Some				Mayor
Jeffersonville, Ind.	1935		Some	Some		x	Clerk-Treas.
Kokomo, Ind.	1936	Some				x	Mayor
Lafayette, Ind.	1939						.....
Lakewood, Ohio	1928		x	x		x	Mayor
Lansing, Mich.	1941						Gen. Mgr.
LaPorte, Ind.	1939						.....
Lima, Ohio	1939			x	x		City Electr.
Lincoln, Ill.	....						City Clerk
Manitowoc, Wis.	1936–7		x	x			Gen. Mgr.
Mansfield, Ohio	1937					x	Dir. Service Safety
Mariette, Ohio	1937						City Electr.
Marion, Ind.	1930	x	x	x			Mayor
Maywood, Ill.	1922						Comptroller
Menominee, Mich.	1938						City Clerk
Milwaukee, Wis.	1922	x	x	x			City Electr.
Mishawaka, Ind.	1940						Mayor
Monroe, Mich.	1927					x	City Dir.
Muskegon, Mich.	1941		x	x		x	City Mgr
Muskegon Heights, Mich.	....					x	City Supt.
New Albany, Ind.	....						City Eng.
New Castle, Ind.	1928		x	x			Mayor
Niles, Mich.	1940						Supt. Bd. Pub. Wks.
Niles, Ohio	1922						Supt. Water & Electr.
Oshkosh, Wis.	1939				x		City Clerk
Pekin, Ill.	1929					x	Mayor
Peoria, Ill.	1940		x	x		x	City Eng.
Piqua, Ohio	1944	x				x	Supt.
Portsmouth, Ohio	1928						City Mgr.
Royal Oak, Mich.	....						City Mgr.
Salem, Ohio	1931						Mayor
Shelbyville, Ind.	1932						City Civil Eng.
Shorewood, Wis.	1932					x	Inspec. Bldg. & Electr.
South Bend, Ind.	1924						Supt.
So. Milwaukee, Wis.	....						City Clerk
Steubenville, Ohio	1943						Mayor
Stevens Pt., Wis.	1922		x			x	Comptroller
Toledo, Ohio	1940						Supervisor
Urbana, Ill.	1930	Some				x	Mayor
Warren, Ohio	1934					x	City Eng.
Watertown, Wis.	1920						Mayor
Waukesha, Wis.	1941			x		x	City Eng.
West Frankford, Ill.	1934	x					Mayor
Winnetka, Ill.	1923						Village Mgr.
Wyandotte, Mich.	1939						Supt.
Youngstown, Ohio	1939					x	Sec. to Mayor
Ypsilanti, Mich.	1940					x	Mayor

THE diversification of municipal interest in street lighting is shown by replies to an AMERICAN CITY questionnaire on post-war plans of cities in the Great Lakes states of Michigan, Wisconsin, Illinois, Indiana, and Ohio. The information was sent in by 29 Commissioners of Public Works, 23 Mayors, 12 City Clerks, 10 City Managers, 8 City Electricians and Lighting Commissioners, 8 Directors of Public Safety, and 4 Directors of Public Utilities from the 94 cities tabulated here.

The first column of data tells when the last improvement was made to the street lighting system from 1914-1943.

Of the 94 cities, 11 expect to install complete new systems; 15 will modernize the lighting on both the traffic and business streets; 26 will relight the traffic streets, and 23 cities will relight the business district.

The cities were asked which they would choose: (1) lower rates with no lighting improvements, or (2) present or slightly increased costs with a new first-class street lighting system. The vote was 11 for lower rates and 42 for increased rates with a new system.

Keep Minimum Lighting

To the Editor of THE AMERICAN CITY:

YOU have certainly done a swell job in promoting better street lighting for traffic safety, and I thought maybe you might be interested to issue a statement that might discourage some communities which are now way below the I.E.S. standards from making plans to curtail their present street lighting. I am mentioning this because the communities which have considered turning off street lighting in this area are the ones that now have less than half of the minimum requirements. The better lighted towns, which more or less conform to I.E.S. recommendations, appreciate the value of good lighting now more than ever before. Some police officials have agreed that they will ask for additional street lighting in localities where store and gas station lighting has helped in the past to give illumination on the streets.

G. E. KORTEN

Supervisor, General Street Lighting Service, Jackson, Mich.
Chairman, Street & Highway Lighting Committee, I.E.S.

(*See also page* 121)

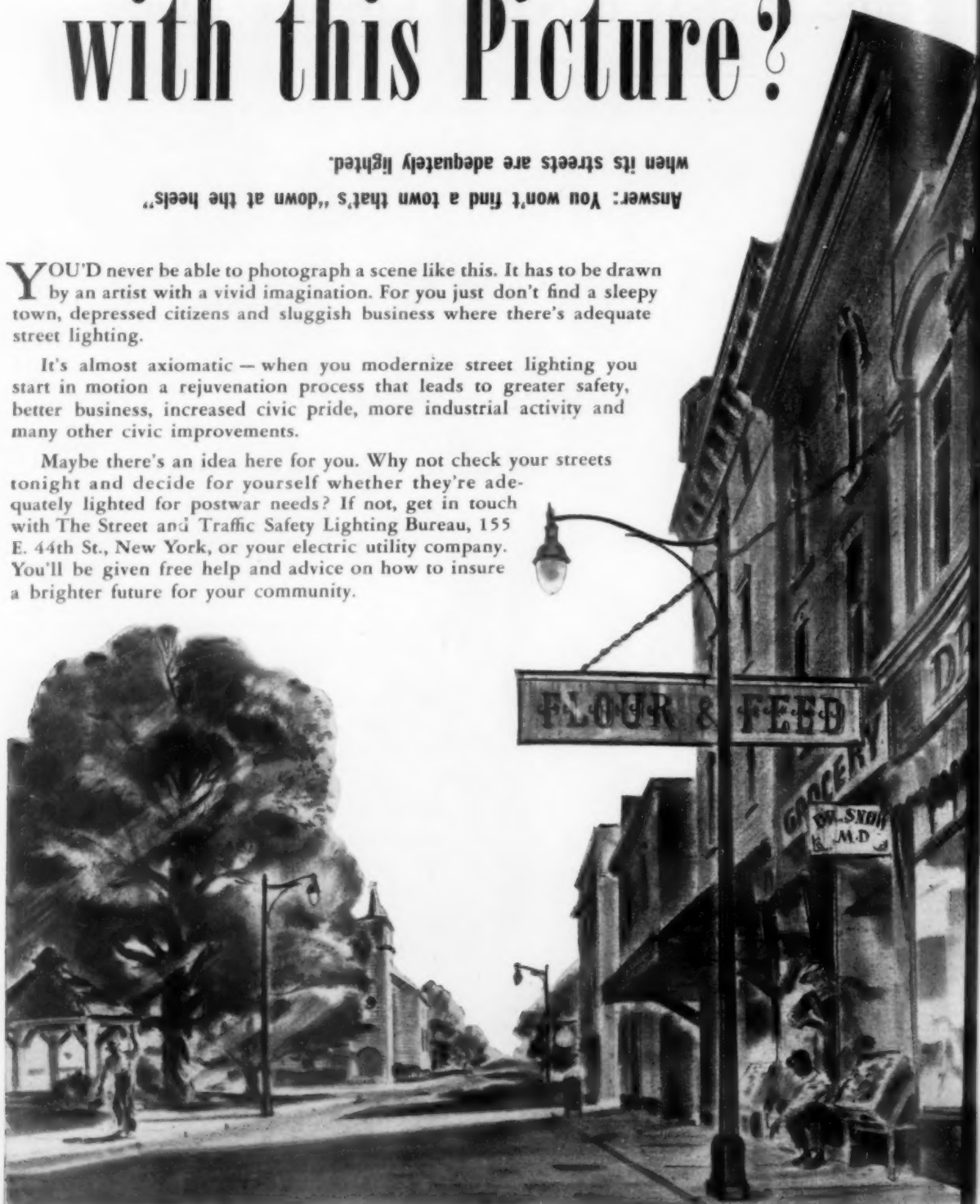
What's wrong with this Picture?

Answer: You won't find a town that's "down at the heels" when its streets are adequately lighted.

YOU'D never be able to photograph a scene like this. It has to be drawn by an artist with a vivid imagination. For you just don't find a sleepy town, depressed citizens and sluggish business where there's adequate street lighting.

It's almost axiomatic — when you modernize street lighting you start in motion a rejuvenation process that leads to greater safety, better business, increased civic pride, more industrial activity and many other civic improvements.

Maybe there's an idea here for you. Why not check your streets tonight and decide for yourself whether they're adequately lighted for postwar needs? If not, get in touch with The Street and Traffic Safety Lighting Bureau, 155 E. 44th St., New York, or your electric utility company. You'll be given free help and advice on how to insure a brighter future for your community.



GOOD STREET LIGHTING — A SURE SIGN OF PROGRES

Cities were departing from this type of residential street lighting before the war.

Night Safety on the Home Front

WHEN the War Production Board ordered the elimination of outdoor lighting, it referred to street lighting as "White way street lighting in excess of the amount determined by local public authority to be necessary for public safety."

City officials know that few towns have an adequate, let alone an excessive, amount of street lighting. Few cities have the first-rate quality of lighting shown below. Probably most of them have the type shown above, or a little better than that.

The lighting shown below is adequate street lighting in peacetime—it's what many municipalities will shoot at after the war. It's safety lighting at its best to date.

The lighting shown above is the type of lighting that needs to be replaced by modern luminaires on tall standards. In the interest of public safety it should not be further reduced to the satisfaction of the criminal and the further undoing of the pedestrian. Rather, it should be improved by cleaning, new lamps, and better maintenance schedules.

Paragraph (C) (6) of Order U-9 provides, as stated above, that the amount of "White way" lighting necessary for public safety should be determined by legal public authorities. The question has been raised as to what standards local public authorities should use in this determination. The Council of Electric Operating Companies, Washington 5, D. C., offers a formula based on the I.E.S. Recommended Practice of Street Lighting. "This formula provides as good a basis for the determination of this question as can be found," says the Council, though "of course, it would not be in the spirit of the order to attempt to increase any street lighting up to these levels when previously lower intensities have been acceptable."

The I.E.S. Recommended Practice of Street Lighting sets 1.2 lumens per square foot as an average amount of light for the pavements of very heavy traffic thoroughfares. Based on this recommendation, the following calculations have been developed:

On a street 60 feet wide between curbs, 1.2 lumens per square foot (1.2 footcandles of illumination) would be provided by:

1. 12 watts per linear foot of street with luminaires equipped with refractors or directive devices.
2. 20 watts per linear foot of street with luminaires with diffusing glassware and no directive devices.

Because of reduction in lighting due to extinguishment of sign lighting and also because of the added hazards, a

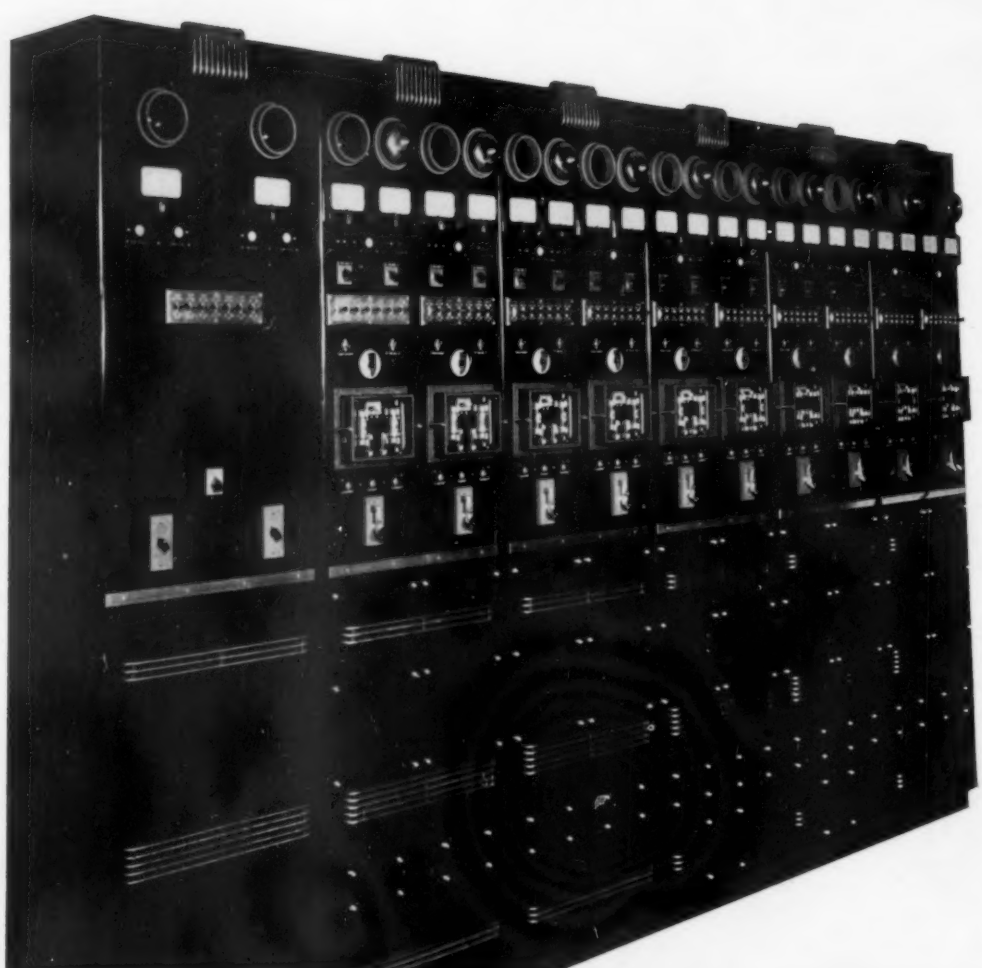
(Continued on page 141)

PHOTOGRAPHS, WESTINGHOUSE ELECTRIC MFG. CO.

Cities are planning for this sort of illumination after the war.

New Type Class A-B-C Fire Alarm Telegraph Switchboards

Supplied In Sectional Panels of Two Circuits Each



A COMPLETE FIRE ALARM TELEGRAPH CENTRAL OFFICE

MANUFACTURED BY

Southern Switch and Signal Company

"There Is No Substitute for Experience"

Shreveport, Louisiana

Wartime Water Works Projects

Federally Constructed or Aided by Federal Grants or Loans Through the Federal Works Agency Median Period Approved Up to January 1, 1945

Location / Type	Completion or Scheduled Completion Date	Estimated Total Cost	Constructed Federally (*) by Grant (†) or Loan (‡)
Alabama			
Childersburg—Waterwks. Sewr.	12 -7-42	$109,260	$109,260†
Montgomery—Waterwks. Add.	7-15-44	668,500	357,000†
Florence—Waterwrks. Add.	8- 8-42	95,189	50,500†
Phenix City—Waterwks. Add.	10-29-44	77,000	30,800†
Sheffield—Water Dist. Add.	4- 2-43	33,654	29,834†
Sayre—Water Sewer		6,857	6,857*
Mobile—Water Dist. Imp.	3- 3-45	354,500	153,357
Mobile—Waterwks. Add.	9-23-44	2,009,650	2,009,650*
Arkansas			
Little Rock—Water Sup. Imp.	8-19-42	98,616	50,666†
Hope—Waterwks. Add.	3-20-43	24,274	24,274†
Jacksonville—Waterworks	1- 1-44	101,799	101,799*
California			
Vallejo—Waterwks. Add.	8- 1-44	1,052,600	1,052,600*
San Diego—Waterworks	10-12-44	2,226,000	2,226,000*
Sn. Luis Obispo—Water Sup. Add.	4-27-44	423,000	423,000*
San Diego—Water Survey	7 -1-44	50,000	50,000*
Sn. L. Obispo Co.—Waterwks. Add.	10- 3-42	35,951	35,951*
Vernon—Waterwks. Add.	3- 3-44	57,420	32,421†
Paso Robles—Water Dist. Add.	9-30-43	55,000	55,000*
Los Angeles—Water Dist. Add.	3- 3-42	29,757	16,228†
Santa Monica—Water Dist.	12- 8-43	165,090	165,090*
Marin Co.—Water Sup. Add.	11- 2-43	440,000	440,000*
Long Beach—Water Dist. Add.	3-11-44	53,695	42,947†
Lompoc—Water Sup. Add.	10- 4-44	55,500	55,500†
Lynwood—Water Dist. Add.	4-12-43	11,531	11,531*
Antioch—Water Sup. Imp.	8-21-43	32,300	32,300*
Pittsburg—Water Dist. Add.	5-29-43	25,606	16,471†
Burbank—Waterwks. Add.	11-11-44	287,500	143,750†
Oakland—Water Mains	5-29-43	16,924	12,618†
Richmond—Water Sup. Mains	9- 1-44	507,500	253,750†
Oakland-Alameda—Wtr. Sup. Mains	8-17-44	152,776	76,388†
Nr. Bixler Sta.—Waterworks	6-30-45	724,126	362,063†
Connecticut			
Waterbury—Water Supply	8-12-44	1,000,000	500,000‡
Groton—Water Dist. Add.	5-22-43	90,656	83,360†
New London—Waterwks. Add.	1-28-44	477,021	141,603†
Bristol—Water Dist.	8-14-43	69,238	35,809†
New Britain—Waterwks. Add.	10-30-44	97,000	35,000†
Groton—Water Sup. Imp.	9-15-44	79,400	79,400*
E. Hartford—Water Sup. Add.	9-10-43	43,322	43,322*
Delaware			
New Castle—Water Sup. Add.	10-12-43	31,497	31,497*
Wilmington—Water Main Swr.		28,250	28,250*
New Castle—Waterworks		87,000	43,500†
Florida			
Sebring—Waterwks. Add.	7-28-43	17,564	10,496†
Panama City—Waterwks. Add.	6- 7-44	85,461	44,916†
Miami—Waterwks. Add.		867,000	315,273†
Panama City—Waterwks. Add.	8-19-44	389,000	389,000*
Sanford—Water Sup. Add.	5-31-43	14,644	14,644*
Cross City—Waterworks	9-23-44	22,623	19,516†
Apalachicola—Waterwks. Swr. Imp.	10-10-44	63,062	63,062†
Lynn Haven—Waterwks. Imp.	9- 8-44	23,000	23,000†
Tampa—Waterwks. Imp.	9-14-44	338,750	120,960†
Jacksonville—Waterwks. Imp.	11-21-44	126,200	63,100†
Carrabelle—Waterwks. Swr.	10-17-44	205,500	205,500*
Fort Walton—Water Sewer		216,000	216,000*
Fort Pierce—Waterworks	2-20-45	132,500	66,500†
			66,000‡
Fort Pierce—Waterwrks. Add.	2-13-45	28,500	28,500‡
Lake City—Waterworks Add.	3-12-45	81,500	40,750†
Georgia			
Macon—Waterworks Add.	12- 2-42	202,529	138,182†
Columbus—Waterworks Imp.	10-30-43	199,192	100,509†
Forest Park—Water Dist. Add.	12- 9-43	18,154	18,154*
Bealwood Area—Water Sup. Add.	11-11-42	14,935	14,450†
Glennville—Water Dist. Swr.	9- 1-44	47,745	47,745*
Augusta—Water Sup. Imp.	12-28-43	29,704	29,704†
Marietta—Water Sup. Swr.	3- 3-44	386,367	254,730†
McCaysville—Water Sup. Dist.	6- 3-44	81,415	51,415†
East Point—Waterworks	8-19-44	102,000	69,500†
Augusta—Waterworks	5-12-44	120,623	120,623*
Bainbridge—Water Swr. Add.	6-24-44	35,000	17,500†
Dublin—Waterworks	7-30-44	26,901	13,451†
Hinesville—Waterworks	9-23-44	75,817	36,817†
			39,000‡
Warner Robins—Wtr. Sup. Swr.	12-19-44	81,260	66,260†
			15,000‡
Muscogee Co.—Waterworks Imp.	3-20-45	69,370	39,370†
Perry—Waterworks Add.	12- 4-44	6,352	4,028†
Illinois			
Rantoul—Waterworks Imp.	5-28-43	42,733	12,733†
Bethalto—Waterworks Sewr.	9-11-43	361,770	221,770†
			140,000‡
Wilmington—Water Dist. Add.	11-10-42	16,033	8,094†
			7,939‡
Elwood—Waterworks	4-28-44	55,015	55,015*
Waukegan—Water Sup. Add.	5- 8-43	157,528	157,528*
Port Byron—Waterworks Sewr.	8-28-43	142,234	79,234†
			63,000‡
Wilmington—Water Sup. Add.	5-21-43	9,953	9,418†
Glenview—Waterworks Add.	3- 4-44	76,313	64,813†
Crotty—Water Sup. Add.	12-11-43	48,813	48,813*
Braidwood—Waterworks Add.	12- 1-44	15,800	15,800†
Marion—Water Sup. Add.		80,285	40,285†
W. Frankfort—Water Add.	2- 5-45	196,829	136,829†
Decatur—Waterworks Imp.	10-28-44	518,000	207,200†
W. Chester Brdvu.—Waterworks	1- 1-45	29,800	29,800*
Galesburg—Water Main	12- 1-44	69,000	20,700†
No. Chicago—Water Dist. Add.	2-20-45	213,000	85,200†
Waukegan—Water Sup. Mains	8-26-44	20,316	10,000†
Colp—Water Distrib.		70,088	27,338†
Chicago—Water Mains		475,000	190,000†
Des Plaine—Water		70,260	24,030
Indiana			
Fort Wayne—Water Dist. Add.	10-29-43	178,649	85,526†
Knox—Waterworks Add.	8-28-42	25,199	14,157†
Charlestown—Waterworks Imp.	2- 1-44	148,000	148,000†
E. Chicago—Waterworks Add.	8- 1-44	172,000	64,600†
Connersville—Waterworks Add.	6-24-42	15,146	15,146†
Odon—Waterworks Add.	1-29-44	24,000	24,000*
Iowa			
Danville—Waterworks Sewer	10-28-42	116,401	96,439†
Middletown—Water Sup. Sewer	12-19-42	56,982	56,982*
Ottumwa—Water Sup. Add.	7- 1-43	149,983	149,983*
Kansas			
Junction City—Water Dist. Add.	2- 6-43	21,189	20,885†
Ogden—Water Sup. Add.	10-24-42	6,187	4,692†
Wichita—Water Dist. Add.	5- 7-43	71,781	71,781*
Pratt—Water Sup. Dist.	8-31-44	10,000	7,600†
Liberal—Water Sup. Add.	1-31-45	6,750	6,190†
Kentucky			
Vine Grove—Waterworks Add.	8-21-43	31,118	20,927†
Elizabethtown—Water Sup. Add.	9- 4-43	96,467	35,401†
Ashland—Water Distrib.	4-20-45	179,964	121,032†
Louisville—Water Dist. Fire		159,073	59,075†
			100,000‡
Buechel—Water		159,073	159,073
Louisiana			
De Ridder—Water Sup.		17,500	17,500*
De Ridder—Waterworks Sewer	10-30-44	777,944	502,944†
			275,000‡
Oakdale—Waterworks Sewer	8-31-43	129,000	129,000†
Shreveport—Waterworks Add.	9- 1-43	188,890	151,964†
Alexandria—Water Sup. Add.	4- 1-44	351,963	131,471†
Pineville—Waterworks Swr. Add.	6-15-44	360,000	160,000†
			200,000‡
New Orleans—Water Supply	8-31-44	334,725	300,000†
New Orleans—Water Sewer		463,000	363,000†
Maine			
Kittery—Waterworks Add.	9-12-44	150,000	100,000†
Portland—Water Sup. Add.	12-31-43	858,000	858,000*
So. Portland—Water Sup. Mains		4,497	4,497*
So. Portland—Water Main Eqp.		980	980*
Kittery—Waterworks Add.	5-30-42	60,000	60,000*
So. Portland—Water		5,477	5,477
Maryland			
Hagerstown—Water Sup. Add.	3-31-45	65,248	54,055†
Baltimore Co.—Water Dist. Add.	7-27-43	12,767	12,566†
Baltimore Co.—Waterworks Add.	7-27-42	48,216	28,930†
Aberdeen—Water Sup. Sewer	12- 6-42	12,870	5,121†
Ann Arundl Co.—Water Dist. Add.	10- 7-42	70,044	40,707†
Montgomery Co.—Water Dist. Add.	4- 4-42	18,976	18,976†
Nr. Baltimore—Water Dist. Add.	5-22-43	748,069	421,747†
			269,486‡
Dundalk—Water Dist. Add.	2-10-43	9,576	9,576*
Elkton—Waterworks Add.	9- 6-44	107,500	87,500†
Suitland—Water Sewer Gas	4- 2-43	51,000	51,000*
Montgomery Co.—Water Dist. Add.	8-16-44	438,000	286,000†
Towson—Waterworks Add.	4-21-45	83,680	44,350†
Massachusetts			
Fall River—Water Sup. Add.	9-28-44	410,365	246,219†
Chicopee—Waterworks Add.	10-15-44	288,000	180,000†
Springfield—Water Sup. Add.	11-20-43	537,000	214,800†

Ridiculous, but it keeps happening—That's one reason why Fire Departments *NEED RADIO!*

Fire department officials in every city have continual trouble with false alarms and misinformation.

Absurd, yet typical, is the case of the woman who telephoned that her house was afire, yet in her excitement gave her sister's address instead of her own. So an engine company and ladder truck roared up to her sister's door—miles away from the fire.

The fire department got to the right address eventually, of course...but the fire gained headway, and time and money were lost.

RCA 2-Way Radio would have made it easy to recall the misdirected fire apparatus *immediately*.

Progressive fire department officials know they need radio. City councils should see to it that they *have* radio.

Plan now an efficient RCA 2-Way Radio System for postwar installation that will help your department give your community the best possible fire protection. RCA will help you plan it...*and help you sell the idea to your city council.*

BUY MORE WAR BONDS

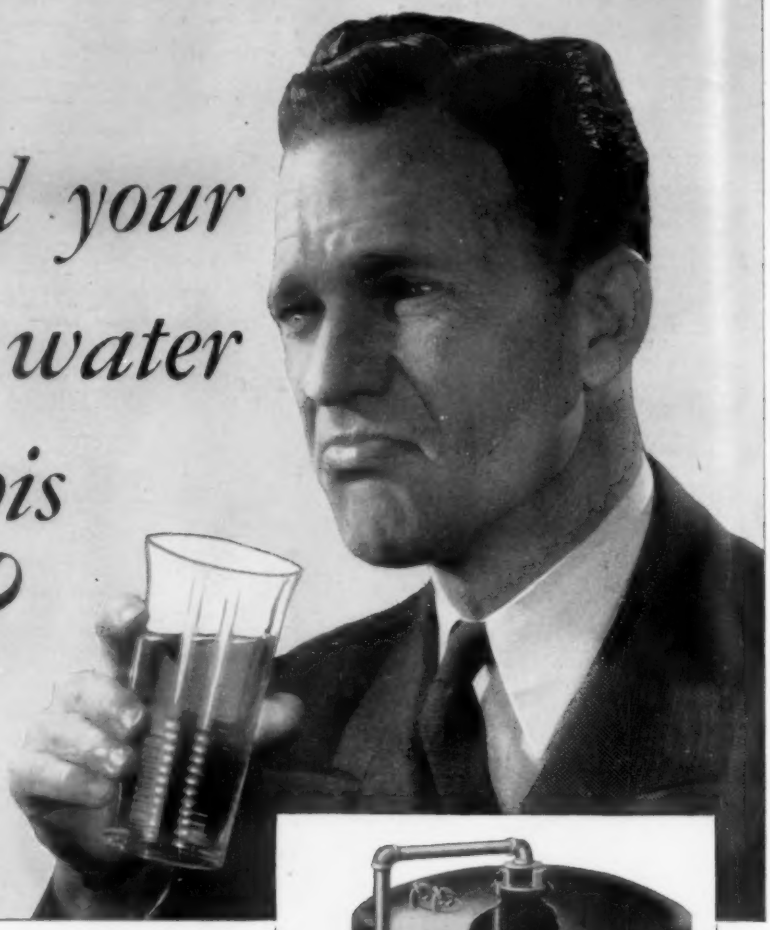
RADIO CORPORATION OF AMERICA

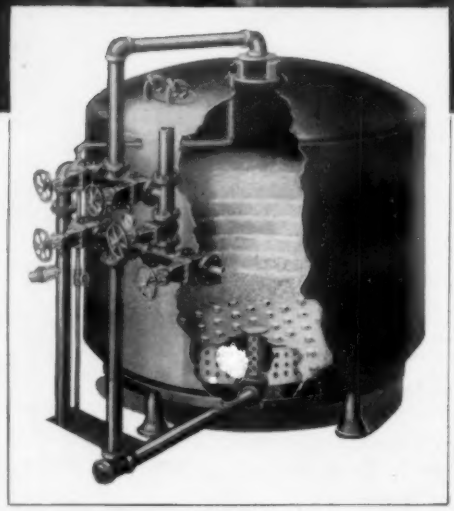
RCA VICTOR DIVISION • CAMDEN, N. J.

In Canada, RCA VICTOR COMPANY LIMITED, Montreal

Location — Type	Completion or Scheduled Completion Date	Estimated Total Cost	Constructed Federally (*) by Grant (†) or Loan (‡)
Massachusettts (Cont.)			
Leominster—Water Treat Add.....	9- 8-43	53,260	41,790†
E. Long Meadow—Water Dist. Add.	12-31-42	46,595	46,595*
Hanover—Water Sup. Add.....	11-24-43	18,748	9,776†
Hudson—Water Sup. Add.....	9-30-44	28,000	24,000†
Michigan			
Flint—Water Sup. Add.....	7-10-43	260,000	110,000†
Warren Twp.—Water Dist. Add...	9-14-43	714,173	312,173†
			402,000‡
Battle Creek—Waterworks Add....	11-12-43	173,816	122,194†
Center Line—Water Dist. Add....	10-10-42	33,159	9,215†
Detroit—Water Dist. Add.....	11- 6-44	1,684,220	1,034,220†
Muskegon—Water Dist. Add.....	8-14-43	46,656	46,656*
Gratiot Twp.—Waterworks Add...	9- 9-44	29,600	16,600†
Detroit—Water Sup. Add.....	6- 3-44	198,000	198,000†
Ypsilanti—Waterworks Add.	3-25-44	19,295	17,051†
Nankin Twp.—Water Main.....	9- 1-44	104,575	54,575†
			50,000‡
Dearborn—Water Dist. Add.....	3- 5-44	619,000	619,000*
Wayne Co.—Water Distrib.....	3- 5-44	1,070,680	1,070,680*
Dearborn—Water Sup. Mains.....	12-15-43	919,661	865,965†
Detroit—Waterworks Add.	7- 7-44	725,050	725,050*
Ferndale—Water Main	8- 5-44	38,200	19,100†
Norton Twp.—Water Sup. Dist....	10-10-44	94,000	28,000†
Ypsilanti—Water Sup. Survy.....	4-29-44	10,191	10,191*
Royal Oak Twp.—Water Sup. Main	9- 2-44	63,000	31,500†
Adrian—Water Treat Imp.....	12-10-44	291,900	166,920†
Ypsilanti—Water Sup. Mains.....	1-20-44	103,810	103,810*
Clawson—Water Sup. Add.....	9-28-44	45,375	45,375*
Muskegon—Water Mains	6- 6-45	246,500	246,500*
Norton Twp.—Water Distrib.....	5- 1-43	26,946	26,946*
Detroit—Water Dist. Add.....	5-20-44	59,850	59,850*
Minnesota			
Minneapolis—Water Dist. Add....	9-15-43	26,122	26,122*
St. Paul —Water Dist. Add.....	2-28-43	46,823	46,823*
Mississippi			
Hattiesburg—Waterworks Add....	2-18-44	41,125	32,512†
Biloxi—Waterworks Add.	11-27-43	147,836	6,835†
Pascagoula—Waterworks Add.	10-19-42	52,632	40,000†
New Augusta—Waterworks Sewer.	10-24-43	95,600	95,600*
McLaurin—Waterworks Sewer....	2-26-44	89,400	89,400*
Forrest Co.—Waterworks Sewer..	12- 9-44	131,750	131,750*
Jackson—Waterworks Imp.....	5-20-44	271,000	67,500†
Centerville—Waterworks Sewer...	5-26-44	141,619	141,619*
Duck Hill—Waterworks	6-24-44	13,311	13,111†
Pascagoula—Water Tank Tower...	3-31-45	30,600	15,300†
Flora—Water Sup. Add.....	2-10-44	19,899	19,899*
Missouri			
Rolla—Waterworks Add.	7- 1-43	64,800	64,800*
Waynesville—Waterworks	10-31-44	101,000	101,000*
Wentzville—Water Sup. Imp.....	9- 5-43	14,000	4,200†
Lebanon—Waterworks Add.	10-15-43	196,099	62,103†
Neosho—Waterworks Add.	4-15-44	49,963	32,708†
Crocker—Water Sup. Sewer.....	4-10-44	48,000	48,000†
Neosho—Waterworks Add.	5-31-44	78,676	78,676*
Montana			
Helena—Water Sup. Add.....	10-14-44	14,000	9,200†
Great Falls—Water Sup. Rsvr.....	6- 1-45	294,610	194,610†
Nebraska			
Sidney—Water Dist. Add.....	1-13-44	6,779	4,995†
Crawford—Water Dist. Add.....		128,000	50,000†
Nevada			
Hawthorne—Waterworks Add.....	9-30-44	50,000	50,000†
New Hampshire			
Portsmouth—Waterworks	10-11-43	399,970	309,220†
New Jersey			
Manville—Water Sup. Fire.....	10-31-44	20,000	10,000†
New Mexico			
Gallup—Water Sup. Imp.....	10- 4-41	1,176	1,176†
Albuquerque—Water Sup. Add...	5- 1-44	30,187	15,448†
New York			
Watervliet—Water Sup. Add.....	11-16-43	27,351	17,039†
Schenectady—Water Supply	1-18-44	459,454	126,920†
Greenport—Waterworks Add.	10-15-44	48,800	33,708†
Sidney—Waterworks Add.	7- 3-43	21,631	11,289†
Tonawanda—Water Dist. Add.....	3-31-44	240,000	120,000†
Buffalo—Water Sup. Add.....	6-27-44	109,332	109,332*
Mineville—Waterworks Sewer.....		195,450	195,450*
Farmingdale—Water Sup. Add....	6-30-44	32,167	9,167†
Niagara Falls—Water Dist.....	12-31-44	714,545	714,545*
North Carolina			
Wilmington—Waterworks Add.....	3-31-45	2,620,000	1,572,000†
Jacksonville—Water Sup. Add.....	12-30-44	187,500	37,500†
			150,000‡
Holly Ridge—Waterworks	5-31-44	24,964	24,964*
Spring Lake—Waterworks	7-17-43	85,270	85,270*
Swansboro—Waterworks	4- 5-44	37,680	37,680*
Bonnie Doone—Waterworks	9-12-42	50,011	50,011*
New Bern—Waterworks Add.....	3-31-44	275,314	127,365†
Creedmoor—Waterworks Imp.....	7-17-44	64,000	64,000†
Elizabeth City—Water Sup. Add...	10-31-44	279,591	279,591*
Ohio			
Toledo—Water Dist. Add.....	5-29-42	127,528	76,936†
Vandalia—Waterworks	7-10-43	183,176	166,601†
Newton Falls—Waterworks Add..	9-18-43	89,601	68,410†
Fairfield—Waterworks	5- 1-43	33,900	24,900†
			9,000‡
Osborn—Waterworks Add.	6-26-43	16,366	13,968†
Cincinnati—Waterworks	9-11-43	2,138,000	2,138,000*
Richland—Water Sup. Add.....	2- 5-44	179,016	98,298†
Vandalia—Waterworks Add.	2-19-45	55,280	55,280*
Akron—Water Mains	12-16-44	101,850	30,555†
Bucyrus—Water Dist. Add.....		164,000	82,000†
Newton Falls—Waterworks	9- 1-44	85,988	85,988*
Oklahoma			
Tulsa—Waterworks Add.	4-15-44	746,606	306,774†
Lawton—Water Treat. Imp.....	11-26-43	200,026	105,139†
Enid—Waterworks Add.	5- 1-43	144,714	100,770†
Pryor Creek—Waterworks Add...	2-26-44	101,751	78,501†
Dawson—Water Dist. Add.....	9-12-42	33,219	18,820†
Locust Grove—Waterworks Imp...	12-27-43	7,035	7,035†
Altus—Water Sup. Add.....	7-31-44	62,000	22,000†
Norman—Waterworks Add.		78,000	51,000†
McAlester—Water Treat. Imp.....	4- 3-44	236,451	83,014†
Oregon			
Hermiston—Waterworks Add.	11-30-43	46,020	23,534†
			22,000‡
Medford—Water Treatment	9-30-43	4,800	4,200†
Pennsylvania			
Vanport—Waterworks	4- 8-42	126,280	126,105‡
Coatesville—Water Main	12-31-43	5,706	5,706†
Morris Twp.—Water Distrib.....	11-30-44	6,000	6,000‡
Rhode Island			
Newport—Waterworks Add.	6- 6-44	85,000	85,000†
Newport—Water Supply	9-30-44	1,671,000	1,671,000*
Newport—Waterworks Add.	10-30-44	2,395,000	2,395,000*
South Carolina			
Beaufort—Water Sup. Add.....	2-27-43	31,753	12,504†
St. Andrew Parish—Waterworks..	9-23-44	139,000	50,000†
			89,000‡
Spartanburg—Water Dist. Add....	3- 2-43	205,779	103,361†
Charleston—Water Dist. Add.....	5- 6-43	290,783	92,570†
Union—Water Sup. Add.....	12-10-43	165,000	165,000*
Charleston Co.—Water Dist. Add..	1- 4-43	21,111	21,111†
N. Charleston—Water Dist. Add...	7-16-43	40,100	40,100*
Hampton—Waterworks Add.	2-19-44	28,244	28,244*
Florence—Water Sup. Add.....		33,500	9,380†
Winnsboro—Waterworks Imp.	2-20-45	53,700	34,905†
South Dakota			
Custer—Water Dist. Fire.....	9-30-44	30,000	21,903†
Provo—Waterworks	11-30-44	6,550	6,550†
Tennessee			
Tullahoma—Water Sup. Sewer....	8-14-43	732,547	509,121†
Milan—Waterworks Add.	8-12-43	176,000	76,000†
			100,000‡
Clarksville—Water Dist. Sewer...	11-20-43	32,587	25,149†
Millington—Water Dist. Sewer....	1-29-44	21,784	21,784†
Columbia—Water Dist. Sewer.....	6-10-44	104,865	65,688†
Lewisburg—Water Main Elec.....	2-26-45	417,698	271,504†
Memphis—Waterworks Imp.	10-15-44	198,518	138,963†
Clinton—Water Sewer		35,500	17,750†
LaFollette—Water Sewer Add.....		34,800	17,400†
Texas			
Palacios—Water Dist. Imp.....	1- 2-43	87,747	87,747†
Goose Creek—Waterworks Imp....	7-13-43	113,890	74,912†
Brownwood—Waterworks Imp. ...	3-10-43	430,277	262,016†
Wichita Falls—Water Dist. Add...	3- 1-43	123,658	90,672†
El Paso—Waterworks	12-29-43	798,051	380,208†
Galveston—Waterworks Add.....	11-18-43	978,775	503,468†
Brown Co.—Waterworks Add.....	12-12-42	191,210	160,511†
Mineral Wells—Waterworks Add...	3-24-44	299,500	267,250†
Abilene—Water Sup. Imp.....	8-26-43	174,899	174,899†
Weatherford—Waterwks. Swr. Add.	6-25-42	59,231	56,731†
Velasco—Waterwks. Swr. Add....	12- 1-42	125,315	66,315†
			59,000‡
Sabine Pass—water Supply.....	8-25-43	262,909	262,909‡
Rockport—Water Dist. Sewer.....	5- 1-44	90,823	65,000†
Port Lavaca—Waterworks Add....	5-15-42	34,738	34,429†
Arlington—Water Dist. Sewer....	11-27-42	110,783	57,869†
Corpus Christi—Waterworks Imp..	2-12-44	444,908	422,280†
Pasadena—Waterworks Sewer Add.	4-24-44	596,406	373,539†
Pelly—Water Dist. Sewer.....	7-15-43	43,876	43,876†
Freeport—Waterworks	9-16-43	205,306	205,306†
Nr. Galveston—Waterworks Sewer	7-31-44	337,754	194,754†
			143,000‡
Victoria—Water Sup. Add.....	3-13-43	15,293	8,013†
Burkburnett—Waterwks. Swr. Add.	10-20-43	33,331	30,349†
Galena Park—Waterworks Add....	1-15-43	65,096	65,096†
Grand Prairie—Waterworks Sewer	9- 4-43	245,729	120,729†
			125,000‡
Hooks—Waterworks Sewer	4-30-44	178,157	178,157*
Elgin—Water Sup. Add.....	7-31-43	50,326	33,886†

How did your drinking water taste this morning?





• Good drinking water is a distinct asset to any community, and it's comparatively easy to have regardless of the source of your raw water. Even if it has an unpleasant taste or odor, both can be eliminated by the proper use of Graver Taste and Odor Removal Filters.

Graver's long experience in designing and building water conditioning equipment of all types has been responsible for the development of this equipment. Installed in hundreds of municipal plants, it has demonstrated its effectiveness, efficiency, and economy. An analysis of your raw water will quickly determine the type of filter needed; we'll gladly make this analysis and submit estimates if you will send us full details of your requirements and a sample of the water.

Graver filters are designed and built to meet a wide variety of needs, including the filtering out of suspended matter, removal of iron or oil from a water, or the elimination of objectionable taste or odor. Graver Filters, either pressure or gravity type, vertical or horizontal, can be supplied in any size to meet your requirements.

GRAVER

WATER CONDITIONING EQUIPMENT

Process Equipment Division of

GRAVER TANK & MFG. CO., INC.

4809-35 Tod Ave., East Chicago, Ind.

New York Catasauqua, Pa. Chicago Tulsa

Location — Type	Completion or Scheduled Completion Date	Estimated Total Cost	Constructed Federally (*) by Grant (†) or Loan (‡)
Texas (Cont.)			
Garland—Waterworks Sewer	8-18-43	114,158	66,166†
Nr. Amarillo—Water Supply	2- 2-43	363,805	363,805*
Kingsville—Water Dist. Imp.	5- 8-44	37,400	37,400†
Kileen—Water Sup. Sewer	12-15-44	160,000	85,000† 75,000‡
Pecos—Waterworks Sewer	12-16-43	41,980	41,980*
Houston—Waterworks Imp.	11-15-44	2,800,000	2,800,000*
Amarillo—Water Sup. Add.	5- 3-44	317,956	72,399†
Bonham—Water Sup. Add.	10-15-44	25,050	12,550†
Abilene—Water Dist. Add.	8-26-43	48,075	29,671†
Fort Worth—Waterworks Add.	8-15-44	277,545	124,895†
Tex. City Hghts—Waterworks Swr.	6-30-44	244,274	144,274†
Harris Co.—Waterworks	9-16-44	90,000	45,000†
Port Neches—Waterworks Sewer	6-25-44	198,700	198,700*
Cuero—Water Sewer Add.	5- 4-44	69,800	46,800†
Fort Worth—Water Sup. Rsvr.	10-31-44	791,000	470,600†
Temple—Water Treat. Imp.	8-24-44	22,000	12,500†
Fort Worth—Water	6- 1-45	102,000	39,231†
Weatherford—Waterworks	6-30-44	26,548	23,541†
Dallas—Waterworks Sewer	10- 4-44	1,388,036	463,196†
Spofford—Water Treatment		10,420	10,420†
New Boston—Waterworks Sewer	11-21-44	203,250	113,250† 90,000‡
Abilene—Water Sup. Imp.	12-22-44	235,000	155,617†
Copperas Cove—Waterworks Imp.	9- 2-44	21,500	21,500*
Harris County—Water Sup. Sewer	4-15-45	790,000	790,000*
Big Spring—Waterworks	11-30-44	820,000	410,000†
Amarillo—Water Sup. Add.	9-30-44	85,000	25,000†
Harris Co.—Water Sewer		88,780	44,390†
Weslaco—Waterworks Imp.		60,000	25,000†
Corpus Christi—Water Sup. Imp.	1-29-44	1,266,000	1,266,000*
Garland—Water Sup. Add.	7-20-43	66,796	66,796*
Jefferson Co.—Water Treat. Garb.	11-17-43	1,845	1,845*
Pasadena—Water Sewer	7-25-44	287,000	287,000*
Near Baytown—Water & Sewer		88,780	44,390
Weatherford—Water & Sewer		47,000	23,500
Weslaco—Water Imp.		60,000	25,000
Utah			
Laytona Town—Waterworks	7-12-44	96,040	61,040†
Ogden—Water Survey	4- 8-43	17,694	17,694*
S. Ogden—Water Sup. Add.	7-14-42	27,363	27,363†
Clearefild—Waterworks Add.	12-18-43	64,423	32,211†
Kaysville—Water Sup. Add.	11-27-43	16,490	16,490*
Layton—Water Sup. Add.	12- 2-43	80,685	80,685*
Tooele—Waterworks Add.	11-19-44	77,500	45,180†
Orem—Waterworks Imp.	12-24-43	86,940	51,928†
Sunset Town—Waterworks Add.	11- 1-44	29,640	16,640†
Helper—Water Sup. Rsvr.	5- 1-45	52,000	26,000†
S. Ogden—Water Sup. Add.	1- 5-44	153,200	153,200*
Vermont			
Springfield—Water Sup. Add.	7-28-43	80,616	47,249†
Windsor—Water Distrib.	12-29-42	3,768	3,594†
Virginia			
Norfolk—Waterworks	6-27-44	2,188,700	1,088,745†
Newport News—Water Sup. Add.	2-22-43	1,076,034	806,376†
Portsmouth—Waterworks Add.	12-21-43	454,643	274,327†
Radford—Water Treatment	7-17-43	188,398	171,457†
Arlington Co.—Waterworks Add.	4- 5-44	687,000	687,000*
Port Royal—Water Sup. Add.	7-15-42	15,597	15,590†
Accotink—Waterworks Sewer	4-11-44	43,403	43,403†
Radford—Water Dist. Add.	5-18-43	107,682	90,000†
Dublin—Water Dist. Add.	6- 3-43	40,099	39,749†
Norfolk—Water Dist. Add.	7-24-43	429,769	428,798†
Newport News—Water Sup. Add.	10- 2-43	715,136	715,136†
Norfolk—Water Sup. Add.	11-27-43	2,152,500	2,152,500*
Cape Charles—Water Mains Add.	3-22-44	36,100	24,880†
Portsmouth—Waterworks Add.	12-31-44	970,000	730,000†
Arlington Co.—Water Sewer Gas.	7-30-43	198,000	198,000*
Blackstone—Water Sup. Add.	3-20-44	15,957	14,159†
Norfolk—Water Dist. Add.	3- 8-45	1,239,000	867,300†
Newport News—Water Sup. Dam.	5-25-44	35,539	35,539†
Williamsburg—Water Sup. Imp.		273,000	136,500†
Portsmouth—Water Sup. Add.		159,600	111,720†
Newport News—Water Distrib.	12- 6-44	70,450	35,225†
Norfolk Co.—Water Dist. Fire	4- 9-44	72,900	36,450†
Scottsville—Waterworks Imp.		16,073	9,129†
Arlington—Waterworks		50,000	50,000†
Dublin—Water Sup. Add.	6-24-43	16,171	16,171*
Newport News—Water Sup. Add.	8-30-44	4,145,224	4,145,224*
Scottsville—Water		11,573	6,573
Arlington—Water		45,000	45,000
Washington			
Fort Lewis—Waterworks	4-18-44	402,557	402,557*
White Center—Waterworks	11- 6-43	110,356	52,038†
Bremerton—Waterworks Add.	1-29-44	417,000	217,000†
Ilwaco—Water Treatment	10- 9-43	24,517	10,903†
Pinehurst—Water Sup. Add.	12-16-44	51,871	46,470†
Nr. Seattle—Water Sup. Add.	1-22-44	87,239	48,249†
Poulsbo—Water Sup. Sewer	10- 2-44	148,141	100,141†
Port Orchard—Water Sup. Add.	8-15-43	14,000	14,000†
Nr. Kirkland—Waterworks Add.	10- 7-44	251,168	251,168*
Milton—Waterworks Add.	5-21-43	26,000	10,000†
Bremerton—Water Dist. Add.	7-20-43	41,809	41,809*
Oak Harbor—Water Supply	1-18-44	28,400	28,400*
Black Diamond—Water Imp.	11- 2-44	91,850	56,850†
Mannette—Waterworks	12- 2-44	64,110	29,110†
Northport—Water	4-15-44	3,552	3,552*
Tacoma—Water Sup. Imp.	3-25-45	574,270	200,994†
Longview—Water		50,000	38,000†
West Virginia			
Pt. Pleasant—Water Dist. Add.	6- 1-43	52,398	52,334†
Elkins—Water Treat. Eqp.	8- 3-44	1,528	801†
Wisconsin			
Manitowoc—Water Dist. Add.	7-31-43	13,511	13,511†
District of Columbia			
Washington—Water Dist. Add.	6-30-44	230,000	115,000† 115,000‡
Washington—Water Dist. Add.	5- 1-44	273,000	164,000† 109,000‡
Washington—Water Treat. Add.	6- 5-43	36,017	18,009† 18,008‡
Washington—Water Sup. Add.	7-18-44	16,000	8,058† 7,942‡
Washington—Water Sewer Gas.	6-25-43	204,000	204,000*
Washington—Water Rsvr. Imp.		69,000	34,500† 34,500‡
Alaska			
Anchorage—Waterworks	10-31-42	71,377	71,377†
Kodiak—Waterworks	10-14-44	200,000	200,000*
Sitka—Water Dist. Add.	8-23-44	122,389	86,900†
Fairbanks—Waterworks		1,754,084	1,403,267†
Hawaii			
Honolulu—Water Sup. Add.	11- 1-44	1,500,000	683,250†
Nr. Honolulu—Water Sup. Add.		298,000	298,000*
Nr. Honolulu—Water Distrib.	4- 7-43	111,796	82,390†
Honolulu—Waterworks	10- 1-45	2,650,000	1,325,000†
Puerto Rico			
San Juan—Water Sup. Add.	4-15-45	4,776,067	4,776,067*
Virgin Island			
St. Thomas—Water Sup. Add.		280,000	280,000†
St. Thomas—Water Sup. Add.		30,000	30,000*

City and County Home Rule in Missouri's New Constitution

AN unusual degree of home rule is granted to local governments in Missouri under the terms of the new State Constitution approved by popular referendum on February 27. Limitations are few and general, including a maximum permissable debt and a maximum tax rate—both of which may be revised upward by local vote. Counties with 85,000 or more population and cities with 10,000 or more population are given full freedom to draft their own charters; two or more counties can consolidate by a majority vote; police, fire, and water services can be merged, even if there is no political consolidation.

Other major reforms embodied in the new Constitution, as analyzed by the Council of State Governments, include:

Elimination of confusion of bureaus and agencies, by giving the Governor power to regroup about 70 minor agencies into from 5 to 10 executive departments; all future bureaus created by the Legislature to be subject to assignment to a department by the Governor.

A redistricting plan which, in effect, allocates control of the House to "outstate" areas and, eventually, control of the Senate by larger urban areas. This plan is modeled after the Congressional system basing representation in one house on population and the other on geography.

Replacing the old heavy taxation on intangible personal property by levying taxes only on the income from intangibles.

Abolishing justice of the peace courts for a system of magistrates' courts with only lawyers eligible for election.

Substituting for the elective office of State Superintendent of Schools a State Education Commissioner selected by a bi-partisan commission.

Of interest, also, is the modernization of the state bill of rights to cover freedom of speech on the radio and to establish specifically the right of labor to organize and bargain collectively.

Direct authority is granted by the new constitution to cities and counties to rebuild blighted areas, and to condemn property for housing or recreational purposes.

"JEEPERS! WE'LL REALLY NEED TWO CITY HALLS!"

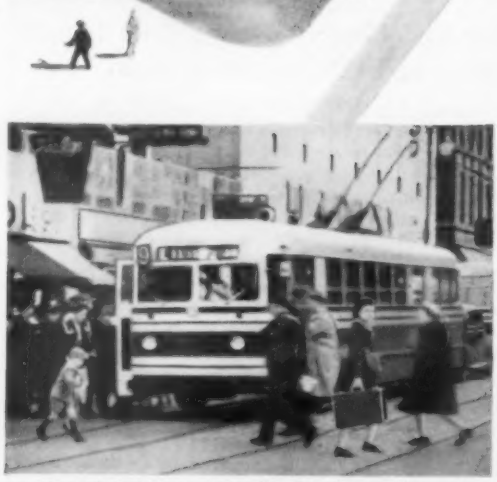
"If everybody is going to ride in automobiles, we'll need one building for employees and another one to store their cars!"

THAT goes for a lot of other downtown workers, too.

Central business buildings provide average floor area of 150 square feet per worker. Storage of automobiles requires 240 square feet per car. At the average peacetime load of 1.75 persons per automobile, the car storage space requirement per person is 140 square feet—only a little less than the average area a man needs for doing his work.

But if more people rode downtown in transit vehicles, there would be more room for those who *must* use their automobiles. There would be less traffic congestion, higher speed for all traffic, and fewer accidents. Above all, there would be no need for planning to do the impossible—that is, provide for 100 per cent of the urban transportation by automobile, with its attendant parking problem.

Almost all transit companies have completed plans for modernizing with greatly improved vehicles, and re-routing to send the lifeblood of efficient transportation into every area of their cities. Work closely with *your* company, and make an important part of your planning the moving of ***people*** first, rather than vehicles, over your existing streets. You'll obtain the best service for the greatest number at the lowest cost to you, to the passenger, and to the taxpayer. *General Electric Company, Schenectady 5, New York.*



IN FORT WAYNE, fast, silent, electric trolley coaches reduce congestion and parking by providing more attractive service that is preferred over automobile driving in city traffic. The resulting increased revenue, coupled with low operating cost, is improving the financial health of the Indiana Service Corporation, and that means better circulation—better community health.

Team Up with Transit—You'll Pep Up the Lifestream of Your City!

GENERAL ELECTRIC

107-124-9560

BUY WAR BONDS

Traffic Control and Facilitation

Conducted by Traffic Control & Facilitation Committee, Institute of Traffic Engineers, 60 John St., New York

W. L. Robinson, Chairman; Donald S. Berry, Fred W. Fisch, Maxwell Halsey, Wilfred F. Irvin, Harry C. Koch, Philip S. Mancini, Claude N. Maurer, W. F. Milner, I. S. Shattuck, George M. Webb

Post-War Challenge to Traffic Engineers

By THEODORE M. MATSON
Director, Bureau of Highway Traffic
Yale University

STREET and highway work amounting to billions of dollars has been developed in various stages of post-war planning. Federal Aid Legislation recently approved has appropriated 500 millions of dollars a year as grants-in-aid by the federal government for construction purposes for each of three successive post-war years. These grants are to be matched by state funds. Adding other than Federal-Aid projects it is expected that over a billion and a half dollars for construction of streets and highways will be available in the first post-war year.

Morcover, a large segment of planning is directed towards the urban areas whose importance is recognized. In these areas over half of the total vehicle miles are run up and these areas are noted for accidents and delays. Thus, over one-quarter of the Federal Aid Fund must be expended for roads in urban areas. With this planning and financial background, a question is raised as to traffic engineering responsibilities. With an expected increase in accident occurrence following the war, there will also be increased pressure for more restrictions on street and highway use. The intelligent application of these restrictions will call for engineering analysis —careful study as to when, where and how accidents and congestion occur and resultant decisions as to the best methods of controlling traffic movement and reducing the number of accidents. Therefore, a thorough knowledge of operating conditions of the street and highway system will be necessary. The engineer will have, accordingly, a real obligation in making studies and developing accurate traffic control commensurate with traffic requirements which exist.

It is equally clear that the rising rate of accident occurrence demanding immediate restrictive measures will give way to demands from the public for *constructive* measures of traffic relief, particularly in view of funds which have been made available for this purpose. Full knowledge of road use and operating conditions will be of aid in determining location, capacity, priority and design of traffic routes. The engineer in the post-war era will be charged with opportunities to render greater service than he has ever had before. In meeting these opportunities and responding to his obligations he will find that there are four primary phases of work which must go forward:

1. There should be a full, accurate knowledge of operating conditions of the street and road system. This involves such studies as traffic volume, speed and delay, origin and destination, congestion and accident occurrence.

2. There will be need for the skillful management of traffic conditions in the streets and highways through the application of *restrictive measures*, such as one-way streets, stop streets, turning regulations, parking regulations, and channelization.

3. Improvements of a physical character will flow from the broad plans which have been made and the necessary funds which have been provided. It is clear that the engineer particularly has a responsibility in seeing to it that the details of design which affect or are affected by traffic movement are clearly understood and evaluated in the final design which precedes construction. Indeed, if the design of new traffic facilities does not properly care for the demands of traffic movement, the engineer will inherit a job increasingly severe when these new structures are put into operation.

4. Full knowledge of traffic operating conditions should be influential in arriving at priorities of development and in shaping the broad character of traffic improvement plans. For example, the full knowledge of origin and destination of traffic movement, coupled with a full knowledge of traffic volume and growth, is extremely significant data in determining the location and capacity requirements of routes to be created. Again, from the point of view of terminal demands of highway movement, it has long been recognized that all central business districts are greatly lacking in satisfactory parking arrangements. The engineer must understand the nature and character of the parking problem in order that he may intelligently plan for off-street parking developments to satisfy the terminal demand.

City administrators recognize that proper personnel and procedures are necessary if the operational requirements of traffic movement are to be met in handling traffic in the post-war era. Public opinion concerning traffic matters stems largely from public experience in the use of their vehicles over the routes and in terminal areas. Freedom from accidents and congestion will be demanded more and more by the public, since accidents and congestion are merely operating manifestations of a failure in street and highway facilities and their control.

Toledo's Parking Problem

PICTURE this scene. A closely built-up residential area near a large war plant. Hundreds of workers use their cars to come to work. The police put in parking restrictions but the workers pay no heed and park across the driveways, too near intersections, or wherever they can in a hurry to avoid being late. Residents are hostile toward the company and workers because access to their own homes, deliveries of coal, groceries, etc., are held up and parking their own cars is practically impossible.

★ ★ ★ *Engineered for Service* ★ ★ ★

Parking Control made easier 7 ways with *Dual Automatic* PARKING METERS

INSERT NICKEL
60 MINUTE PARKING
9 A.M. TO 4 P.M.
WHITE POINTER SHOWS UNEXPIRED TIME
GREEN SIGNAL FALLS AT END OF PARKING PERIOD
255
The ORIGINAL Parking Meter

HERE'S what you get when you put your parking on a *metered* basis — with DUALS . . .

- Greater public safety and convenience
- Simplified traffic regulation
- Increased parking turnover
- Faster traffic movement
- Less double parking
- Minimum cruising
- No congestion

DUAL AUTOMATIC PARKING METERS were the *first* installed anywhere . . . and they're *first* in number of cities metered. Engineered *right* for long and dependable service, built *right* by skilled craftsmen, they offer you every assurance of all-around satisfaction.

Anticipate *your* postwar traffic control problems *now*. Get the facts on Dual's many superior features. Ask Dual's engineers to help you survey your needs. Place your order *in advance* so that you will be sure of quick action when war ends. Write to Dual today.

THE DUAL PARKING METER *Company*

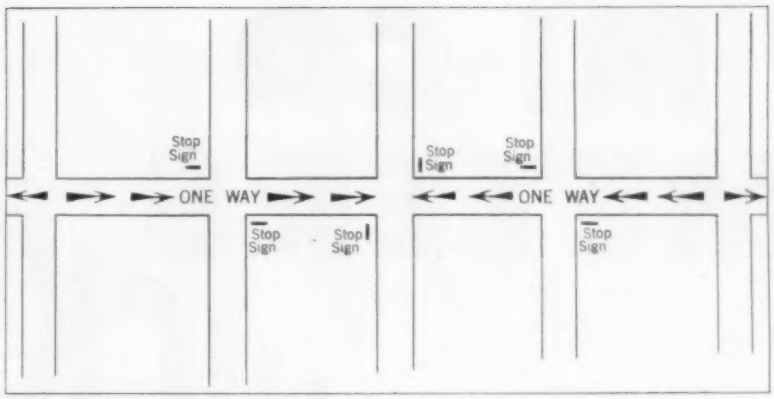
Harter Bank Building
★
CANTON 2, OHIO

Parking tickets for workers put on by the police are cancelled with a warning when union officials interceded in behalf of the worker on the plea that he must get to work somehow. During shift changes the congestion is terrific.

Such a problem was causing real trouble in Toledo, Ohio, near the plant of the Autolite Company. Traffic Engineer Paul S. Robinette was called in and solved the problem. Union officials have cooperated; not a single parking ticket has been cancelled; the residents get a break and congestion at shift changes is lessened. Briefly here's the plan.

Workers on the 7 a.m. to 3 p.m. shift (in 450 cars) must park only on the north or east side of a street, being permitted to park the entire period of the shift. The other side of the street is restricted to 90 minutes parking between 7 a.m. and 3 p.m., thus providing parking time for residents as well. At 2:30 p.m. when the 300 cars carrying workers for the 3 p.m. to 11 p.m., shift begin to arrive they must park on the south or west side of a street. Soon the north and east sides of the streets, which are restricted to 90 minutes parking after 3 p.m., are clear and residents can use them. A company parking lot accommodates all workers who drive for the 11 p.m. to 7 a.m. shift.

The Autolite Company, recognizing the need for ample off-street parking for workers, has provided such parking at its new plant in an outlying section of Toledo. This plant is 3/8-mile from the main highway, making parking convenient to workers who then do not have to walk far to enter the plant.



Opposing one-way street plan used in Toledo, Ohio, to discourage heavy traffic in residential areas.

Traffic Line Marking from a Car Chassis

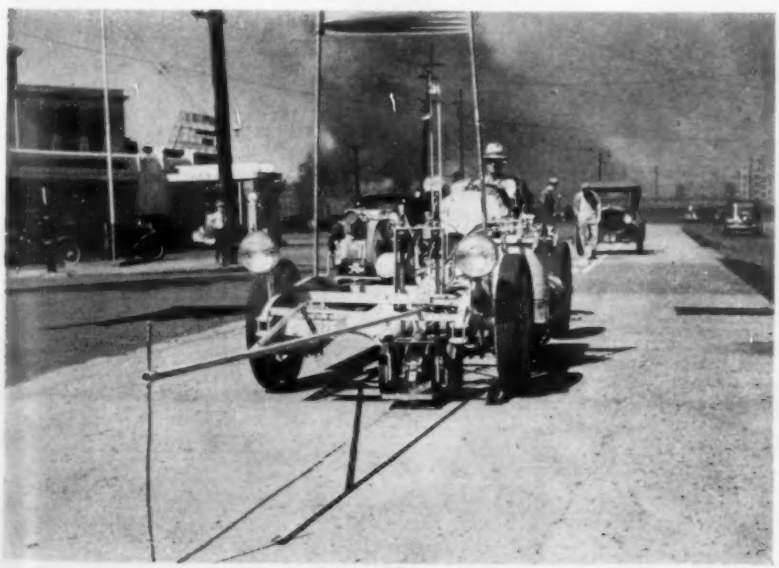
Simple Operation Assures Even, Straight Lines

THE Traffic Engineering Division of Seattle, Wash., paints 175 to 200 miles of directional line annually for traffic control purposes. Prior to Pearl Harbor the paint used was of lacquer specifications, drying within 3 to 5 minutes after application.

Prior to 1939 machines were constructed from a tricycle-type motorcycle with air-cooled gas engine and air compressor, air tank and 10-gallon tank mounted on the machine. Sighting rods were installed ahead of the machine to be used for delineation. The shortcoming of this particular type of machine was the uneven line produced, at times caused by the operator getting off the markings and then suddenly turning back. To overcome this difficulty the chassis of an automobile was used. Its steering was reversed, so that the machine operated backward. Gears were reversed and the driver placed over the radiator. This meant steering the machine from the rear, with the result that when deviation was made from the markings on the pavement the turnback to the line was in a long tangent rather than in a short bend and was not perceptible to the eye.

This conclusion was drawn from the steering of a boat which is brought back into line by the shifting of the rudder. The steering wheels, being in the rear of the machine, acted like a rudder. All the usual equipment was mounted on the chassis, including the compressor, gas engine, paint pots, spray gun, etc. In this respect a spray gun known as the "internal mix" type was used, thus eliminating all paint fog encountered in the external mix.

With this machine and one truck following on the line 300 to 400 feet back, all warning flags were eliminated and traffic might drive immediately over the line behind the truck, which also carried additional paint or lacquer supplies.



Car chassis with marking apparatus used on Seattle streets.

MI·CO METERS PAY OUT QUICKLY

because they are seldom out of order

★ *Manufactured under the patents of F. L. Michaels by The Michaels Art Bronze Co., Inc., Covington, Ky.*

There are several reasons for this. (1) Unusually low maintenance expense. (2) Ability to operate under all weather conditions. (3) Fewer moving parts to get out of order. (4) Structural strength for long-lived, dependable service. (5) Simplicity of construction—no winding. Get all the facts. Learn why MI-CO Meters are becoming increasingly popular. Literature containing complete specifications and case histories of MI-CO Meter earnings will be sent on request. ¶ Right now the facilities of this organization are engaged in war work, but immediately after civilian production is resumed, MI-CO Parking Meters and other products will again be available.

Experienced Representatives Wanted

MI-CO METER CORPORATION, 231 Court St., COVINGTON, KY.

Bare Pavements Safest

By **RALPH A. MOYER***
Iowa State College
Ames, Iowa

AVAILABLE accident facts show that maximum safety on winter roads is provided when ice and snow are completely removed, leaving bare pavement surfaces. During the last year, many reports have been received on the widespread policy of bare pavement winter maintenance by city, county and state street and highway departments.

The two methods of bare pavement most widely used are: (1) prompt snow removal and (2) straight application of sodium or calcium chloride without abrasives on the snow-covered or ice-covered surface. The application of chlorides after snow has fallen to a depth of an inch, at the rate of ¼-pound per square yard of roadway, prevents the snow from bonding to the pavement, and keeps the snow mealy. To remove sleet or thin layers of ice or packed snow, the application of 300 pounds of sodium or calcium chloride per mile of a two-lane roadway by means of trucks with a shopper and spreader pipe or any suitable spreading device will generally melt snow and ice when the temperature is just below freezing.

Chlorides used straight without abrasives are preferred by many maintenance departments because they require less materials and labor and can be applied faster than when treated sand or cinders are used to prevent slipperyness. Another advantage of using the chlorides straight on city streets is the labor saved in the spring when the sand or cinders must be cleaned off the streets and out of the gutters and catch basins.

Abrasives treated with calcium or sodium chloride at the rate of 50 to 200 pounds per cubic yard are more effective in imbedding the abrasive and in reducing the skidding hazard than are untreated abrasives. The chlorides are also necessary to prevent the abrasives from freezing solid where they are stored in open stock piles along the road ready for use on hills, curves, intersections and at other danger points. The greatest amount of chloride is needed where the abrasive, such as cinders, contains considerable fine particles which absorb a large amount of moisture. For best results, approximately one-half of the chlorides should be mixed with abrasives when preparing them for the stock piles, and the other half should be added when the trucks are loaded just before spreading them on the icy or packed snow surfaces.

On Portland cement concrete pavements, it is recommended that sodium or calcium chloride be used as sparingly as possible to prevent pools of brine from forming. It has been found that where these salts have been used too freely, considerable surface pitting and scaling have developed in pavements under four years old.

Increasing interest is shown in Air-entrained cements which extensive tests have demonstrated will produce concrete pavements highly resistant to the pitting and scaling action of chlorides.

* Chairman of National Safety Council Committee on Winter Driving Hazards.

Cleveland Orders 50 More Trolley Coaches

TRACKLESS trolley operation on Wade Park would cost 7.5 percent less per mile than the gas coach operation. This compares with the 8.2 percent in Memphis and 3.2 percent in Seattle. Our conclusion, with respect to cost of operation, certainly is verified by the transit industry generally.

Although the conclusions are that trackless trolleys are advantageous from an economy standpoint, the costs are so close to each other that this difference is not the most important factor in choosing trackless trolleys where they can be used economically.

There are many other factors which, to me, outweigh the cost factors. This is a public operation. Our riders are buying the transit system. When the cost factor has been eliminated, I feel that these ride-owners are entitled to the kind of transportation which is most to their liking. It has been obvious throughout the transit industry that trackless trolley operation creates the maximum of public good will.

WALTER J. McCARTER
General Manager
Cleveland Transit System

LEFT—*A steel plate guard rail made by the Tuthill Spring Company, Chicago, was installed in Appleton, Wis., to protect pedestrians walking on the bridge.*

BELOW—*A car loading platform in Indianapolis, using a Tuthill Highway Guard Rail which protects waiting passengers. The rail panel is 12 inches wide and is mounted on top of the concrete platform thus acting as a splash guard and keeping vehicles from getting up on the platform. The hand chain warns pedestrians of guard rail.*

The Pendulum OF THE KARPARK

MEANS TIME TESTED DEPENDABILITY

• The pendulum escapement of the Karpark brings to meter timing the accuracy and reliability of the fine faithful clocks which accurately tell time for years on end. And accuracy and faithfulness are cardinal requirements in parking meters. A simple, strong mechanism, it is built for rugged sustained service. With fragile parts eliminated, it keeps going under conditions that cause hair springs to overbank and balance wheels to falter in the congealed oil of their bearings. Its pendulum control is an important reason why Karpark is the wise choice.

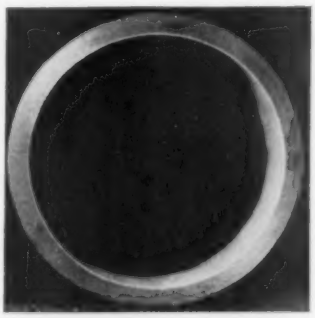
WRITE for the Karpark story. Learn about its advanced features. You need this information in order to choose wisely.

KARPARKS ARE MANUFACTURED BY THE HERSCHEDE HALL CLOCK CO.

KARPARK ★ KARPARK

Automatics CORPORATION, CINCINNATI 6, OHIO

Cement-lined MONO-CAST PIPE Prevents Tuberculation



Cross-section of a sample of cement-lined cast iron pipe.

Mono-Cast Cement-lined Pipe installed in the Summerville Test Line is periodically dug up for inspection. Repeated inspections over a period of years fail to reveal the slightest signs of incrustation from this water which is highly tuberculating. The cement lining of the pipe has remained smooth and consequently the value of the coefficient "C" remains practically constant.

Economical and long-lasting, Mono-Cast Pipe may be had with a variety of joints to meet every condition. Write for full details.

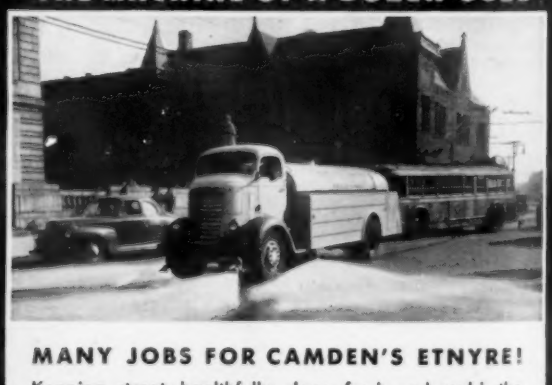
AMERICAN CAST IRON PIPE COMPANY

Birmingham 2, Alabama

Sales Offices in Principal Cities

ETNYRE Street Flushers

"THE MACHINE OF A DOZEN USES"



MANY JOBS FOR CAMDEN'S ETNYRE!

Keeping streets healthfully clean, fresh and cool is the main job handled by Etnyre Street Flushers in Camden, N. J. But the "Machine of a Dozen Uses" is also called upon to fight rubbish fires, sprinkle dusty surfaces and haul water. Get "specs" now on the Flusher that cleans streets up to 42 feet wide in ONE trip, irrespective of parked cars. See your Etnyre dealer or write us today.

E. D. ETNYRE & CO., Oregon, Illinois

Zoning and Planning Notes

Edited by FRANK B. WILLIAMS
Author of *The Law of City Planning and Zoning*

Residential District—Non-Conforming Business Use—State Armory

GEORGIA.—*Snow* v. *Johnson*, Supreme Court, December 1, 1943, reported in 28 S. E. (2d) 270.

This is a suit for an injunction brought by Johnson and others to enjoin Snow and others from establishing and conducting an undertaking establishment on premises owned by the Snows, situated in a residential zoning district. The property was for many years used as a private residence. Later it was purchased and used by the state as an armory, and then sold to the Snows. The Snows claim that the use as an armory is a business use, and that, being non-conforming, the property may be converted into another business use.

The Johnsons own and occupy a residence in the district in which the Snow property is located. The Johnsons, therefore, if they establish their claim that the conversion of the property into an undertaking establishment is in violation of the zoning ordinance in this district, are entitled to an injunction without proof that they will sustain substantial financial loss by such use. A home owner in such a restricted area may well be said to suffer a damage not shared by the public, even although material financial loss be not involved.

At the time of the sale of the armory premises to the Snows, the supply company of the National Guard had some of its property stored there and the State Guard was meeting there. This was not a business use.

It is argued that, since the ordinance forbids the construction of any building for any purpose or use other than homes, apartment houses or churches, it by its own terms thereby defines any building which is not being used for one of these three purposes as being used for business purposes. But suppose that there was a building in the district formerly used as a grammar school by public educational authorities, or a building used as the district headquarters for the State Highway Patrol, or by the Red Cross for its activities. Surely, when so occupied it could not be said that these buildings were used for a business purpose.

The generally accepted meanings of "business" and "business use" necessarily imply employment of one or more persons for the purpose of earning a livelihood, activities of persons to improve their economic conditions, and generally relate to commercial and industrial engagements; but, properly, a mother devoting a considerable part of her time to rearing her children is not engaged in business.

It is claimed that the resolution of the Mayor and Council, approving of the conversion of the building into an undertaking establishment, validated such a change; but the zoning ordinance forbids such a change, and the ordinance must prevail. Nor can the resolution be effective as an amendment of the ordinance. The city can only act under the state constitution and zoning legislative act passed under it by the state legislature; under this legislation the Mayor and Council had no power to single out one particular building and exempt it from the prohibitory provisions of the general zoning ordinance. Besides, such an amendment would be unreasonable and void also for that reason.

The Johnsons, therefore, are entitled to their injunction preventing the use of the premises in question for an undertaking establishment.

Streets—Private Walk or Public Highway?

NEW YORK.—Feltman v. Ward, Supreme Court, May 20, 1944, reported in 48 N. Y. S. 2d, 889.

In 1882 Ward became the owner of a large tract of land on Coney Island facing the ocean. This tract included what is now known as Jones Walk. In the same year Ward contracted to convey a part of this tract, on Surf Avenue, to one Baas. In this contract Ward agreed "to throw open a road or way 30 feet wide and running from Surf Avenue to the Atlantic Ocean, "said road to be for the exclusive use of the parties hereto, their heirs, grantees and assigns."

In the same year the Feltmans became owners of a large tract of land adjoining Ward's land. Jones Walk separates the Ward's property and the Feltman's property.

The city and the Feltmans claim that Jones Walk is a public highway, and in support of their contention have proven: that the public for pedestrian traffic (but not for vehicular traffic) have since 1884 used the walk; that businesses abutting Jones Walk have no other means of ingress or egress; that a public sewer was constructed in the bed of the walk upon the petition of the abutting owners; that an assessment for benefit for the construction of this sewer was levied upon the abutting property and paid for by the abutting owners, including the Feltmans and the Wards; that a city owned water main lies in the bed of this walk; that the walk is policed, given fire protection, flushed and swept by the Sanitation Department which also removes garbage and maintains a waste basket on it; that permits to open and excavate in Jones Walk were issued by the City and paid for by the Feltmans; that since 1895 the Walk was not assessed for tax purposes, and since then has not been taxed; that the City assigned house numbers to the buildings along the walk.

The Court holds that the Walk has not become a public highway. Pedestrians began to use this Walk, not as a matter of right but with the consent and at the invitation of the Wards. It was an entrance, an approach, to the business places abutting on it. The activities of the various city departments in connection with this Walk were voluntarily performed, and, bearing in mind that the property was used as an amusement center, these activities were in the interest of the public and are consistent with private ownership. The fact that the city has for years failed to impose a tax on the Walk has no significance, as the city cannot acquire an interest in private property by failing to tax it. Nor can any adverse inference be drawn from the fact that a sewer was constructed in the bed of the Walk upon the petition of the abutting owners, and that a city water main was laid in it, and that the city issued permits for the opening of the Walk for the purpose of conecting both the sewer and the water main. These acts are consistent with private ownership and it does not clearly and decisively appear that by these acts the Wards intended to burden the Walk with a public easement.

The Wards have proved that: they built, maintained and repaired the Walk and that the city has never constructed, repaired or maintained it; that the Walk has never been open to public vehicular traffic, or used for this purpose; that the Wards erected and maintained a ramp leading from the Walk to the boardwalk; that the city has never maintained any lights on the Walk; that the Wards have used many parts of this Walk for private purposes; that in 1914 they erected a concrete walk on the easterly side of the Walk, without the consent of the Feltmans; that each year after the season closed the Walk was roped off for a few days at both ends.

It therefore appears that Jones Walk was created for private purposes and ever since its creation has been maintained and repaired by its owners, and has been used and maintained for private businesses. The public use has only been incidental and at the invitation of the owners for business purposes. In these circumstances the Wards are entitled to a judgment in their favor.

Zoning Ordinance—Amendment—Three-Fourths Vote Required

CONNECTICUT.—*Warren* v. *Borowsky*, Supreme Court, April 6, 1944, reported in 37 Atl. (2d) 364.

A petition was introduced in the Common Council of the city of New Britain for the extension of a business "A" zoning district in the city, and referred to the Board of Adjustment. The board voted 19 to 8 to deny the petition as presented, but to recommend to the Common Council the granting of a substantial part of it. The zoning ordinance provides that a three-fourths vote is necessary if a report adverse to a change is rendered. The Court holds that the report could not be considered to be adverse.

In favor of a protest against the change were a co-tenant and executrices, but the Court is of the opinion that they were not owners, within the meaning of the zoning ordinance, and the land areas represented by them could not be counted in favor of the protest.

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Letters to the Editor

When Municipalities Sell Bonds

To the Editor of THE AMERICAN CITY:

As you have invited comment on the article headed "Leadership Needed in the Municipal Bond Field," which appread in the December, 1944, issue of THE AMERICAN CITY, I am glad to give you an expression of my opinion.

A few days ago the city of Bessemer, Ala. (pop., 1940, 22,826) sold an issue of $1,150,000 water revenue bonds. This typical small American city had the benefit of the aid of local bond men in preparing the issue for market and, after giving the usual publicity to its call for bids, some 34 bond dealers participated in the competitive sale. The issue was awarded to a New York bond house group on terms which give the city the benefit of an interest cost of 1.94 percent!

Were it possible to measure it, it would be found that these 34 competing bond houses collectively spent thousands of dollars just in the effort to tender bids for this loan, with no assurance as to who would buy the issue, and the winning syndicate is rendering its services in finding a market for the city's bonds for a gross profit of $18 per $1,000 bond.

The foregoing case history is cited by way of an answer to the criticism that leadership is needed in the municipal bond field, that bankers do not render the help to municipalities they should; that they keep their light under a bushel, etc., etc.

Those familiar with the highly-specialized municipal division of the investment banking industry will testify that municipalities, large and small, city or county, district or authority, are about the most fortunate of all borrowers or "issuers" of securities in the country.

Of course it is true—and unavoidably so—that in the case of smaller communities, the city treasurer and other finance officer is seldom a bond expert. Even in the case of the larger cities this is bound to be so, because we choose our public officials from all walks of life and we change them frequently. But there are protections in the form of state-wide laws, supervisory bureaus, and, most important of all, public competitive sale of bond issues.

In the last 25 years, tremendous strides have been made in the field of municipal bond financing. Through the combined efforts of the bond attorneys, state officials and lawmakers, organizations such as the Municipal Finance Officers Association, the American Municipal Association, the Investment Bankers Association, and trade journals, one state after another has rewritten its bond laws and some have set up state regulatory bureaus to assist municipalities in finance problems. All in all, these various interests and groups have done a tremendously valuable job of education in the ranks of municipal finance officials, the results of which are apparent to anyone who cares to examine the results of the sales each year of thousands of individual bond issues having an aggregate par value averaging, in peacetime years, well in excess of $1,000,000,000.

Rather than a lack of leadership, I think the municipal bond profession has been most fortunate in its leadership and that it has done a pretty good job.

New York — FRANK H. MORSE,
February 14, 1945. — Lehman Brothers.

EDITORIAL NOTE—THE AMERICAN CITY *will welcome further comment, either from financial institutions or from city officials, which might lead to more effective cooperation between bond sellers and bond buyers in the municipal field.*

Proposal for a Commission of Inquiry on American Units of Local Government

To the Editor of THE AMERICAN CITY:

THE time appears right to explore the possibilities of a comprehensive nationwide study of state constitutional and statutory provisions for the systems of municipal classification adopted by the various states and the major forms of municipal government now in use. Such an analysis should include investigation of the practical implications, for municipal administration and financing of municipal services, of the present classification system; and how existing and proposed federal and state legislation affects such classification systems in particular states.

The need for such a survey was pointed up in the discussion in Congress and at the annual meeting of the American Municipal Association, when the Federal-Aid Highway Act of 1944 was under consideration and a satisfactory formula for urban apportionment was being sought.[1]

Several broad studies have already broken ground in this direction, particularly in the field of public finance.[2] Basic statistical data are contained in the Anderson study of units of government,[3] and in a recent similar study by the Bureau of the Census.[4]. The real need is for an *administrative* study of the practical implications for the operation of local government services of the classification systems of local governments now followed by the states, especially where there is a definite relationship between federal and state legislation, the classification systems, and local government services, as in the highway field in the 1944 Federal-Aid Highway Act.

The recently organized Council on Intergovernmental Relations might undertake such a survey.[5] Perhaps the best approach might be through a fundamental national inquiry along the lines of the personnel study made by the Commission of Inquiry on Public Service Personnel during 1934-35. Such a study might be given high priority on the agenda of the Federal-State Fiscal Authority proposed in the Groves-Gulick-Newcomer report,[6] if and when the Authority is created.

NORMAN N. GILL
Municipal Reference Librarian
City Hall, Milwaukee, Wis.

[1] For the formula finally adopted, see THE AMERICAN CITY for January 1945, page 5.

[2] *Federal, State and Local Government Fiscal Relations.* Letter from the Acting Secretary of the Treasury, transmitting in response to S. Res. 160, A Report Submitted to the Secretary of the Treasury by a special committee designated to conduct a study on Intergovernmental Fiscal Relations in the United States. *Federal, State, Local Fiscal Relations*, a report prepared by Thomas H. Reed, for the Committee on Local Government Activities and Revenues (Municipal Finance Officers Association of the United States and Canada, 1942).

For comparative study, the *Report of the (Canadian) Royal Commission* on Dominion-Provincial Relations (Ottawa, 1940).

[3] William Anderson, *The Units of Government in the United States* (new ed., rev; Chicago: Public Administration Service, Pub. No. 83, 1942).

[4] U. S. Bureau of the Census, Governments Division, *Government Units in the United States* (1942).

[5] See Note in *Public Management* XXVI, 23 (January 1944).

[6] Cited as first reference in footnote 2.

Citizen Designations: *Answers to Quiz on Page 92*

1. Albuquerquean
2. Amarilloan
3. Atlantan
4. Battle Creekite
5. Beaumonter
6. Bellinghamite
7. Bethlehemite
8. Charlottean
9. Cheyenneite
10. Columbusite
11. Corpus Christian
12. Dallesite
13. Demoiner
14. Duluthian
15. El Pasoan
16. Flintite
17. Fond du Lacian
18. Fort Waynite
19. Fort Worther
20. Grand Rapidian
21. Jaxon
22. Jersey Cityite
23. Kalamazooan *or* Kazooan
24. Kansas Citian
25. Key Wester
26. Little Rockian
27. Memphian
28. Mobilian
29. New Havener
30. Orleanian
31. Omahan
32. Oshkoshian
33. Phoenician
34. Puebloan
35. Rochesterian
36. Salt Laker
37. Santa Fean
38. Sooite
39. Savannahian
40. South Bender
41. Spokanite
42. Tacoman
43. Tampan
44. Terre Hautean
45. Trinidadian
46. Trojan
47. Tulsan
48. Wacoan
49. Walla Wallan
50. Yonkersite

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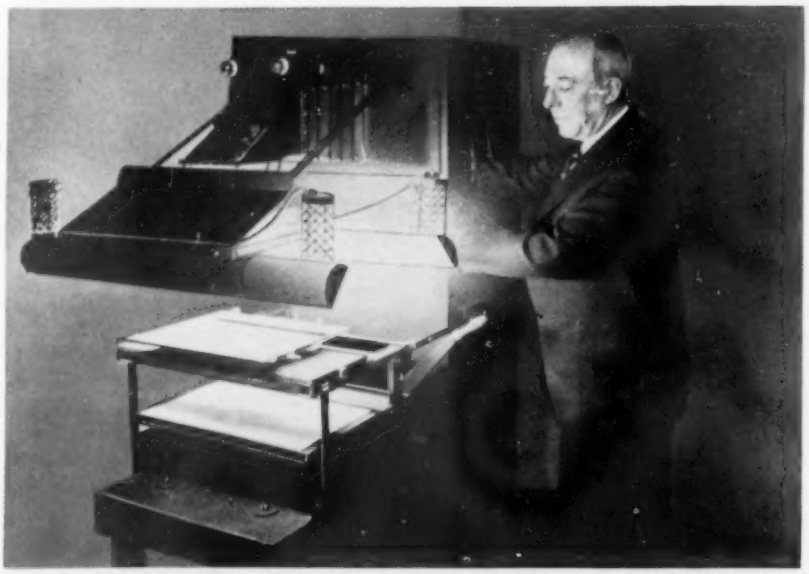

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Municipal Law Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Washington, D. C.
Charles S. Rhyne, *Executive Director*

Court Decisions on Validity of Agreements by Cities with Local Housing Authority to Eliminate Substandard Housing

THROUGHOUT the nation cities are making surveys looking toward sweeping programs in the post-war period for the elimination of substandard houses. Such a program will provide better living conditions and at the same time furnish post-war employment to thousands of workers. In cities having public housing projects under agreements with the Federal Public Housing Authority, the requirement that a substandard housing unit be eliminated for each new unit constructed has been suspended for the duration of the war. When the war is over, this will mean that many substandard units must be eliminated as soon as possible. This note collects the court decisions bearing specifically upon such agreements to eliminate substandard housing.

Police Power

The authority to require the elimination of substandard buildings is found in the police power of the state.* Although in many instances the argument has been presented that since the housing projects benefit only a certain class, they are of a private and not a public concern, this argument has generally been refuted on the ground that fundamentally such a project tends to benefit everyone and is therefore sufficiently public in nature to come within the police power.

Slum Clearance Projects

In the case of *Humphrey* v. *City of Phoenix*, 55 Ariz. 374, 102 P. (2d) 82 (1940):

"It is first contended that the proposed projects for slum clearance and low rent are private in their nature and that the attempt to vest in the city the exercise of the right of eminent domain to acquire sites for their location violates Sec. 17, Article II of the State Constitution. This contention is contrary to the expressed views of the legislature, which asserts in the municipal housing law (Chapter 82) that such projects are for 'public uses and purposes for which public money may be spent and private property acquired and are governmental functions of state concern.' . . . While a declaration of this kind by the legislature is not conclusive upon the courts, such declaration is of great weight. It was made by the legislature under the state's police power to protect the health, morals, and safety of the people by providing housing and surroundings for that portion of the population unable by reason of low income to provide for themselves."

In *Hogue* v. *Housing Authority of Little Rock*, 201 Ark. 263, 144 S. W. (2d) 49 (1940) the Court stated that:

"The [Housing Authorities] Act is not discriminatory against private owners of dwelling accommodations and does not take their property for public purposes or uses without due process of law and without a just compensation therefor. All property rights are held subject to the state's police power and in the exercise of the police power the state has full power to establish and enforce all regulations reasonable and necessary to secure the health, safety, and general welfare of the community."

Similar Decisions

The same result was reached in *People ex rel Stokes* v. *Newton*, 106 Colo. 61, 101 Pac. (2d) 21 (1940) wherein the court held that statutes authorizing cities of the first class to engage in slum clearance and housing projects was of a public concern and a proper exercise of the police power under state sovereignty.

In the case of *Darnan* v. *Philadelphia Housing Authority*, 331 Pa. 209, 200 Atl. 834 (1938) the court stated that:

"There is a factor which conclusively determines that the use for which these housing projects are designed is a public one, namely, that the construction of new dwellings as authorized by these statutes is to be an aid to, and indeed a necessary adjunct of, the demolition of dangerous and unsanitary dwellings, which in turn, is an exercise of the police power of the Commonwealth."

Likewise it was held in the case of *Lennox* v. *Housing Authority of City of Omaha*, 137 Neb. 582, 290 N. W. 451 (1940) that the elimination of unsafe and dilapidated tenements in cities of the metropolitan class by replacement with safe sanitary dwellings under housing authority acts was a legitimate object for the exercise of the police power to protect the health, safety, morals and general welfare of the people.

In *Matthaei* v. *Housing Authority of Baltimore City*, 177 *Md.* 506, 9 *Atl.* (2d) 835 (1939) the court stated that the provision in slum clearance statutes for those who would otherwise be dwellers in similarly dangerous conditions is within the same police power that justifies removal of the slums, and is, in substance, the power to remove nuisances.

In *Chapman* v. *Huntington, W. Va.*, Housing Authority, 121 W. Va., 319, 3 S. E. (2d) 502 (1939) the court held that the West Virginia Housing Act slum clearance and low rent housing incident thereto were within the police power of the legislature and were for a public purpose.

A Detroit Case

In the case of *In Re Brewster Street Housing Site in City of Detroit*, 291 Mich. 313, 389 N. W. 493 (1939) the court stated that:

"There can be no doubt but that the state, and in general, municipal corporations, under the police power, may condemn, tear down, and remove buildings which are inimical to the public safety by reason of their inherent weakness or because they constitute a fire hazard; and, upon principle, there seems to be no reason why the state, in the exercise of its police power, may not delegate the power and authority to the City of Detroit under the act in question to condemn property for what may be termed slum clearance purposes because such property may be a menace to the health, peace and safety of the inhabitants of the city other than those who occupy the premises."

Conclusion

These cases indicate that when the material shortage ends with the war's end, cities have the legal power to carry out their agreement with FPHA to eliminate substandard housing units equal to the number erected under the public housing program.

* See "Demolition, Vacation and Repair of Substandard Buildings," Reports 37 and 39 of the National Institute of Municipal Law Officers.

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Conventions—When and Where

Because of the ban on conventions and trade shows requiring an attendance of more than 50 persons, most of the meetings which would ordinarily be listed on this page have been cancelled. According to the latest reports received by The American City, *those listed below are still scheduled to be held. It is suggested, however, that persons planning to attend any of these meetings ask the respective organizations for final confirmation.*

Conventions Still Scheduled

Mar. 19-21—Toronto, Ont.
AMERICAN WATER WORKS ASSOCIATION—CANADIAN SECTION. Annual Convention. (Hotel Royal York.) Sec., Dr. A. E. Berry, c/o Ontario Department of Health, Parliament Bldg., Toronto, Ont.

Mar. 28-30—Atlantic City, N. J.
NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION. Annual Meeting. (Hotel Claridge.) Sec., Thomas D. Mulhern, New Brunswick, N. J.

Apr. 12-13—Lewiston, Mont.
MONTANA SEWAGE WORKS ASSOCIATION. First Annual Meeting. Sec.-Treas., Herbert B. Foote, Division of Sanitary Engineering, State Board of Health, Helena, Mont.

Apr. 13-14—Lewiston, Mont.
AMERICAN WATER WORKS ASSOCIATION—MONTANA SECTION. Annual Meeting. Sec.-Treas., Herbert B. Foote, Division of Sanitary Engineering, State Board of Health, Helena, Mont.

Apr. 13—Washington, D. C.
NATIONAL FIRE WASTE COUNCIL. Annual Business Meeting. (U. S. Chamber of Commerce Bldg.) Sec., H. E. Hilton, 1615 H St., Washington, D. C.

*Apr. 20-25—Atlantic City, N. J.
AMERICAN INSTITUTE OF ARCHITECTS. Annual Meeting. "Reduced" Convention. (Hotel Claridge.) Exec. Sec., E. C. Kemper, 1741 New York Ave., Washington, D. C.

Apr. 30-May 2—New York, N. Y.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Planning Meeting. (Hotel New Yorker.) Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

May 2—Boston, Mass.
NEW ENGLAND SEWAGE WORKS ASSOCIATION. Spring Meeting. (Hotel Statler.) Sec.-Treas., LeRoy W. Van Kleeck, Connecticut State Department of Health, State Office Bldg., Hartford, Conn.

May 7-10—Chicago, Ill.
NATIONAL FIRE PROTECTION ASSOCIATION. Annual Meeting. (Palmer House.) M'ng. Dir., Percy Bugbee, 60 Batterymarch St., Boston, Mass.

June 4-7—Rock Island, Ill.
BUILDING OFFICIALS' CONFERENCE OF AMERICA. Annual Meeting. Sec.-Treas., Arthur N. Rutherford, Building Inspector, West Hartford, Conn.

*June 18-20—Cincinnati, Ohio
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Meeting. (Hotel Netherland Plaza.) Sec.-Treas., George F. Simmons, Ogden, Utah.

June 18-21—Toronto, Ont.
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES Annual Conference. (Royal York Hotel.) Sec., Jessica Allan, Mount Royal Hotel, Montreal, Que.

*Aug. 21-24—Cleveland, Ohio
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Meeting. (Hotel Statler.) Sec., Daniel B. Tierney, 8 Robbins Rd., Arlington, Mass.

* First appearance on this page.

Conventions Cancelled

The following conferences previously listed in THE AMERICAN CITY will *not* be held:

American Federation of State, County, and Municipal Employees
American Water Works Association—Indiana Section
American Water Works Association—Michigan Section
American Water Works Association—Minnesota Section
American Water Works Association—Ohio Section
American Shore and Beach Preservation Association
American Society of Civil Engineers
Association of County Commissioners of Georgia
Midwest Power Conference
National Association of Purchasing Agents—Governmental, Education and Institutional Group
National Conference of Social Work
Pennsylvania State Association of Boroughs
Pennsylvania State Association of Township Commissioners
Special Libraries Association

Wilmington, N. C., Inaugurates a Planning Program

A PLANNING program for Wilmington and its environs, divided into two definite phases to run for approximately 16 months, has been inaugurated by the City Planning Board of that municipality. The first phase, estimated to be completed within six months, will include a comprehensive industrial and economic survey of the area. The results of this study will be utilized in negotiating with any business and industry which shows an interest in expanding or establishing plants in this area. The report will also, of course, be of great value in directing the activity of local business, in the development of available resources and in emphasizing appropriate fields on which the area as a whole should concentrate.

The second phase, which is estimated to take about 10 months, will include thorough studies and specific recommendations on all phases of physical planning. Of prime importance will be the effectuation of a comprehensive zoning ordinance, something which Wilmington has heretofore lacked. Other subjects will embrace transportation, traffic, parks, public buildings, housing, and all phases of city planning.

The whole program will be under the direction of George W. Simons, Jr., of Jacksonville, Fla., aided by his staff of technicians and by J. Fred Rippy, Jr., Secretary of the City Planning Board.

Recognizing the fact that without public acceptance fine plans are of little avail, every effort will be made to secure public participation, cooperation, and support of the plans and recommendations in order to maintain city planning as a living thing for the betterment of Wilmington.

Night Safety on the Home Front

(Concluded from page 121)

25 percent increase in the above allowances should be made in cities of 300,000 or more population. A 20 percent decrease may be made in cities of less than 25,000 population where conditions permit.

In those systems using diffusing globes, increases, increases proportionately as those shown above, can be obtained in amount of light on the street, and more effective distribution of it, by the use of refractors or directive devices. The formula of the Council of Electric Operating Companies shows that refractor or directive device systems require only 60 percent of the power necessary in diffusing globe systems to provide the same amount of useful illumination. The increase is obtained with no increase in power consumed, all of it being due to more efficient utilization of the light generated.

The above formula could be used for streets varying in width from 52 to 72 feet. A decrease or increase may be made on narrower or wider streets, roughly in proportion to the pavement area.

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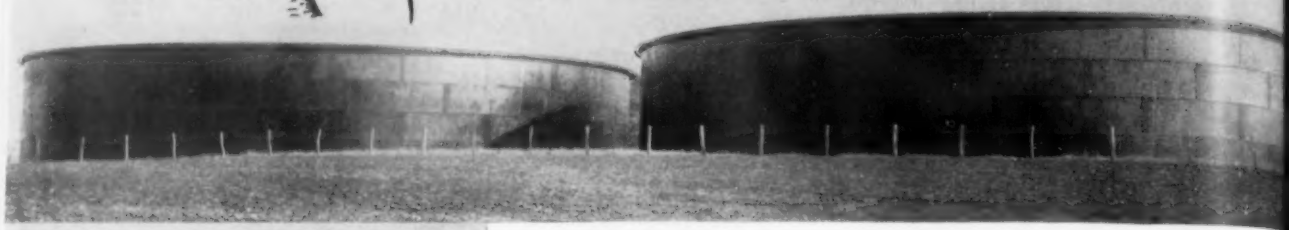

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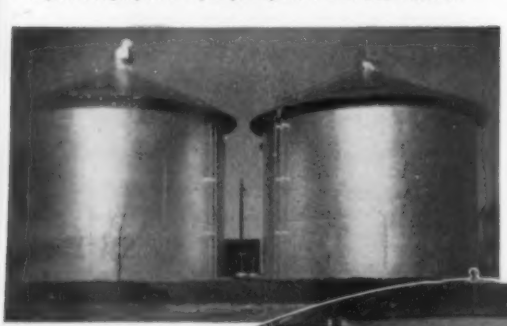
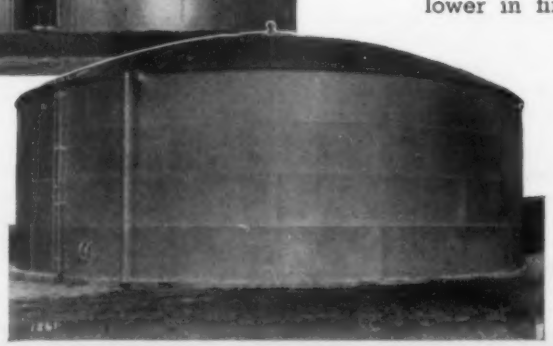


Atlantic, Iowa—Two 100,000-gallon P·DM Steel Reservoirs



Bottineau, N. D.—1,000,000-gallon P·DM Steel Reservoir

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Municipal and Civic Publications

Full Employment

FULL EMPLOYMENT IN A FREE SOCIETY.—*By William H. Beveridge. W. W. Norton & Co., New York.* 429 *pp.* $3.75.

An indispensable handbook on the causes of unemployment and the proposals for effecting a cure. This study, written by Sir William Beveridge as a private citizen, reenforces his argument set forth in the 1942 official "Report on Social Insurance and Allied Services" to the British Government, that full productive employment in a free society is possible. It must be reached, however, he holds, by a "conscious continuous organization of all our productive resources under democratic control." His basic point is that the state must be able to maintain full employment and must be given the power to do so. If the abolition of private property should become necessary, that would have to be done, says Sir William, but in his judgment, that is not the solution.

The principal measures he proposes are adequate total outlay for full employment—that is, adequate spending power to keep everyone busy; the controlled location of industry and organized mobility of labor, and necessary changes in government machinery to achieve these results without sacrificing citizens' liberties. He proposes long-time programs of public and private spending based on social priorities, controlled by a "new kind of budget" which would allocate not only money revenues of the government but the manpower assets of the nation.

Employment must be productive and progressive, leaving scope for change, invention, competition, and initiative. Jobs rather than men must wait. . . . "Useful things must always be waiting to be done" . . . a condition of society that can be achieved only by adequate total outlay. His proposals for achieving this end are dealt with in clear and sufficient detail in this readable and convincing book.

"The adoption of a policy of full employment by the United States would be the most important economic advance that could happen in the whole world and to the benefit of the whole world," says Sir William. That, perhaps, accounts for this timely American edition of one of England's greatest books of the war period.

Reclaiming an Area

THE VALLEY AND ITS PEOPLE.—*Text by R. L. Duffus, illustrations by the Graphics Department of the Tennessee Valley Authority, Charles Krutch, Chief. Alfred A. Knopf, New York.* 1944. 167 *pp.* $2.75.

This portrait of TVA tells the story of the nation's first great experiment in rebuilding by the stimulus of public enterprise a region laid waste by decades of exploitation. More than a hundred illustrations reveal in human terms the historic panorama of the Valley and its people—first as they were in 1933, a disheartened area at the bottom of the depression; presently as they became when the dams and dynamos began to transform the region and its life; and finally as they are, with today's heartening actualities merging into tomorrow's certainties. The story is told with deep conviction and is enriched by genuine poetic feeling for the region and for the magnitude of the achievement of TVA. A book that makes Americans proud of America at its best.

Program for Stabilizing Construction Industry

STABILIZING THE CONSTRUCTION INDUSTRY.—*By Miles L. Colean. Pamphlet No.* 41. *National Planning Association,* 800 *21st St., N. W., Washington* 6, *D. C. February* 1945. 38 *pp.* 25c.

One of a series on policy problems related to the attainment of full employment, this report was prepared by Mr. Colean for the Business Committee on National Policy, and subsequently was the basis for a joint statement, which is also included in this booklet, by the National Planning Association's three standing committees on national policy—the Agricultural, Business, and Labor Committees.

The committee's report calls to the attention of all construction industries that a greater volume of construction must be reached than at any previous peak of activity, and should be maintained over a long period. The construction industry must avoid a repetition of the experience of the '20's, it warns, when rising costs and a speculative market destroyed demand for construction.

Adequate research in construction and the interpretation and publication of an adequate series of data to serve as a barometer of construction activity is urged so that the industry can be alert to changing developments and new opportunities. To carry this out, the committee recommends the establishment in an agency such as the Department of Commerce, a Bureau of Construction Economics authorized to assemble, maintain and publish data regularly. Among other recommendations, the committee advocates the establishment of a Public Works Control Authority to determine the timing of all federal construction and to cooperate with the states in carrying out concurrent policies.

The Story of Cement

THE MAGIC POWDER.—*By Earl J. Hadley. G. P. Putnam's Sons,* 2 *W.* 45*th St., New York* 19, *N. Y.* 381 *pp.* 90 *illustrations.* $3.50.

The story of the cement industry told through the vehicle of the Universal Atlas Cement Company—largest cement manufacturer. It translates scientific, structural and marketing achievements of cement and concrete into terms of men and struggles and aspirations. The author points out how few persons today realize their dependence upon the uses of cement. One of the earliest factors in building, cement has become indispensable to modern construction. The book describes the origin of the first rotary kiln in America; the introduction of powdered coal for burning cement to 2700° Fahrenheit; the making of cement for the Panama Canal and other vast constructions; the ingenious promotion and development of the concrete road—pointing out how cement and concrete have entered into virtually every activity of engineering and architecture.

Handbook for Estimating Building Costs

ESTIMATING BUILDING COSTS (*Third Edition*). —*Charles F. Dingman. McGraw-Hill Book Co.,* 330 *W.* 42*nd St., New York* 18, *N. Y.* 1944. 401 *pp.* $3.00.

Practical handbook of estimating, based on accurate methods of analyzing any construction project into component operations and determining proper cost price to assign to each. Covers estimating on all building construction operations, from excavating to roofing and waterproofing. Gives both new and experienced estimators helpful methods of determining quantities of labor and amounts of material to produce a unit of complete work in practically every branch of building construction.

Conference of Southern Institute of Local Government

PROCEEDINGS OF THE FIFTH ANNUAL SOUTHERN INSTITUTE OF LOCAL GOVERNMENT.—*University of Tennessee, Box* 4164, *Knoxville* 16, *Tenn. January* 1945. 60 *pp.*

The principal papers delivered at the Fifth Annual Session of the Southern Institute of Local Government held at Nashville, Tenn., on November 10, 1944. Included are a message by James D. Hoskins, President of the University of Tennessee; "Municipal Problems in the Reconversion Period," by Walter J. Mattison; "State and Local Taxation of Federal Property," by Roy G. Blakey; and "Administrative Reforms Possible in Southern Counties," by Harold I. Baumes.

Indiana Plans for an Airport System

AN AVIATION PROGRAM FOR INDIANA.—*Bulletin No.* 5. *Indiana Economic Council,* 609 *Board of Trade Building, Indianapolis* 4, *Ind. November* 1944. 66 *pp.* 5 *tables.* 8 *figures.*

"Aviation will emerge from the present war as a full-fledged member of the transportation family, a member whose hoped-for potentialities have become realities through making its contribution to the winning of the war." With this in mind, Indiana has taken steps towards preparing the state to meet the future needs of aviation. This report is divided into three parts. Part I outlines a plan for a system of airports throughout the state; Part II is devoted to the responsibility of local communities; and Part III discusses the responsibility of the state government.

In developing a proposed airport plan, consideration has been given to each community in the state in regard to three primary factors: economic background, existing transportation facilities, and the geographic situation and relationship to other communities both large and small. The plan provides for at least one airport in each county in the state, within easy reach of all of Indiana's county seats and cities, and with very few exceptions, an airport within 15 miles of all parts of the state. "Before the war, the ratio of existing airports to certificated aircraft in the state was approximately one to twelve," it is indicated. "If the prediction of eleven to twelve thousand aircraft in the state after the war becomes a reality, and all of the airports proposed in this plan are provided, the ratio would be about one airport to each ninety-two aircraft."

A Pilot's Suggestion for Airport Planning

MODERN AIRFIELD PLANNING AND CONCEALMENT. —*By Merrill E. De Longe, Major, Army Air Corps. Pitman Publishing Corporation,* 2 *W.* 45*th St., New York* 19, *N. Y.* 1943. 167 *pp. Illus.* $4.00.

This book is offered as a guide to engineers and to all who will undertake the planning and operation of airfields of tomorrow. Colonel Homer Saint-Gaudens, in a preface, calls this an authoritative book written in an intelligent and simple manner by an airplane pilot who has viewed his problem from above, from the ground, and in the drafting room of the Camouflage Branch of the Engineer Board at Fort Belvoir, Va. The author draws distinctions between camouflage and concealment and describes the relative advantages of artificial and natural cover. In an easy-to-understand manner, he discusses such topics as turf fields versus concrete runways, problems of dispersion, of the location of hangars and protective pens and tells how to solve these problems in terms of dollars and cents. He points out that if our airfields are expected to be located, designed, and developed so as to be efficient and yet as invulnerable as possible to attack, it will require the combined abilities of military aviation experts, and groups of engineers, architects, landscape architects, city planners, agronomists, and foresters.

Governmental Units

GOVERNMENTAL UNITS IN THE UNITED STATES 1942.—*Prepared under the supervision of E. R. Gray, Chief, Governments Division, Bureau of the Census.* 1944. 67 *pp. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington* 25, *D. C.* 20c.

This report enumerates and classifies the governmental units in the United States and is part of, and a basic factor in, the broader "Census of Governments: 1942." This census, known in 1932 and prior decades as "Wealth, Debt, and Taxation," is taken decennially for the years ending in "2," and includes the revenue, expenditure, debt, government-enterprise financies, and public employment of all governmental units.

Floods and their inevitable aftermath—the menace of epidemic water-borne disease—call for quick and effective action. Countless communities stricken by flood waters know how Mathieson's Sanitation HTH affords prompt chlorination of polluted water supplies—prevents the scourge of disease and makes possible early resumption of safe water service.

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The Development of Gas Turbine

THE MODERN GAS TURBINE.—*By R. Tom Sawyer, Published by Prentice-Hall, Inc., 70 Fifth Ave., New York 3, N. Y. February 1945. 216 pp. $4.00. Illus.*

A factual and authentic study of the past development and the future possibilities of the gas turbine, a "must" for everyone interested in gas turbines—valuable to executives and practicing engineers, yet elementary enough for students and laymen. Based on years of study and research and the experience of leading engineers who have played important roles in the development of the gas turbine in America and elsewhere, Mr. Sawyer authoritatively describes and illustrates its varied uses as a supercharger and prime mover, including up-to-date data on jet propulsion. Explanations of the fundamental principles of gas turbine operation, as well as a graphic description of inventions, and recent developments covering industrial, marine, railroad, and aeronautical applications are clearly and thoroughly presented.

New York State's Post-War Public Works Program

APPROVED STATE AND MUNICIPAL PROJECTS.—*New York State Post-War Public Works Planning Commission, State Office Building, Albany 1, N. Y. 1945. 66 pp.*

The progress of the post-war public works program for New York State, consisting of projects which have been approved as of January 1, 1945. State projects have been approved totaling $82,899,891, the plans for $33,213,135 of which are either completed or underway; and counties and municipal projects totaling $193,850,582 are listed, the plans for $144,483,532 of which are either completed or underway. The report indicates the status of each of the contemplated improvements and additions to existing facilities, as well as the new projects, which comprise this progam.

Financial Data for Cities

FINANCES OF CITIES HAVING POPULATIONS LESS THAN 25,000, 1942.—*Prepared under the supervision of E. R. Gray, Chief, Governments Division, Bureau of the Census. 1944. 43 pp. U. S. Government Printing Office, Washington 25, D. C. 15c.*

Part of the comprehensive decennial series of reports, "Census of Governments: 1942." It indicates, by population group, the general revenues received by cities and the general expenditures for operation, as well as capital outlay, debt service and debts outstanding.

Own Your Own Home

HOME OWNERSHIP: IS IT SOUND?—*By John P. Dean, Department of Sociology, Queens College, Harper and Brothers, 49 E. 33rd St., New York 16, N. Y. 215 pp. $2.50.*

Required reading for families who intend to buy a home and for builders, real estate men, mortgage lenders, and all others who want to see home ownership made safe and sound for American families. Robert S. Lynd, Professor of Sociology, Columbia University, in a foreword to the book, states, "We are on the eve of one of the greatest home purchasing splurges in American history. The real estate, mortgage, home-building and equipment interests are sharpening their terms and their sales talk. And home-hungry returning service men with money in their pockets are apt to be ducks on a fence for these sharpshooters. . . . Dr. Dean recognizes the strong American tradition in favor of home ownership, and he accepts it as good where it *is* good for a given family; but the quetsion is: How can a family know?"

In an analysis of home buying and home selling, Dr. Dean shows how our American faith in home ownership has been ruthlessly exploited in order to sell homes. He analyzes the costs of ownership, the hidden risks in house and neighborhood, and the complex market situation in which families try to realize their "home hopes."

Interstate Sanitation Commission Report

ANNUAL REPORT OF THE INTERSTATE SANITATION COMMISSION—NEW YORK, NEW JERSEY and CONNECTICUT.—*Interstate Sanitation Commission, 60 Hudson Street, New York 13, N. Y. 79 pp. Illus.*

Operating in the states of New York, New Jersey, and Connecticut, the Interstate Sanitation Commission, one of the foremost organizations of its kind in the country in the control of pollution, presents its progress and activities for the year 1944. The Commission has been instrumental in safeguarding the present quality of the waters of the Interstate Sanitation District by calling attention to violations caused by operating procedure as well as by discouraging the discharge of untreated sewage and by taking steps to advance the completion of treatment plants.

Control of Erosion Along the Atlantic Shoreline

REPORT TO THE LEGISLATURE OF THE STATE OF NEW YORK.—*By the joint legislative committee studying the problem of checking erosion along the Atlantic shoreline of the state. February 15, 1945. 58 pp. Illus.*

Included in this report is a recommended act authorizing the Superintendent of Public Works to construct erosion-arresting public works and to restore and protect the lands along the Atlantic ocean; and authorizing municipalities to contribute toward the cost thereof.

(See page 81 of this issue.)

Conditions and Problems of Planning

TIME FOR PLANNING.—*By Lewis L. Lorwin. Harper and Brothers, 49 E. 33d St., New York 16, N. Y. 1945. 273 pp. $3.*

Although this book is directed primarily to the conditions and problems of national and international planning, the author does not neglect the relations of local and regional planning to broader programs. He is, moreover, aware that physical planning is only one aspect of the idea of planning in our time; the economic and social phases receive special attention.

Dr. Lorwin's major premise is that the effective utilization of their resources, both human and natural, is demanded by the peoples of all countries, irrespective of their governmental patterns or their economic practices. The answer to this demand for the democratic countries lies in a more conscious planning of economic forces toward agreed social ends, under joint labor-management-governmental action. Unless we create the agencies of cooperation, the people will accept the formulas of those who assert the superiority of totalitarian—and irresponsible—regimes.

Most of the book is devoted to working out a blueprint for cooperation in charting ends and stimulating cooperation. The author's suggestions are both reasonable and persuasive. "Time for Planning" is one of the really constructive contributions to our thinking—at a time when action toward planning is a decisive issue in America.

PHILLIPS BRADLEY.

Reorganization of County Government

THE COUNTY MANAGER PLAN.—*National Municipal League, 299 Broadway, New York 7, N. Y. 1945. 22 pp. 15c.*

The latest pamphlet issued by the National Municipal League sets up procedures for modernizing county administrations by centering the responsibility in a qualified administrator —as in the council-manager plan adopted by 600 communities and a few counties before 1945. The functions of counties tend to become centralized in the state and national governments. Counties are potentially important units of government, the booklet points out, and it outlines certain practices that tend to prevent them from being real units of local self-government. It cites the progress of eleven counties which have the closest approach to the pure council-manager form.

Schenectady Plans Now

PLANNING FOR SCHENECTADY.—*Progress Report of the Interdepartment Post-War Planning Committee on Post-War Projects. Schenectady, N. Y. November 1944. 24 pp.*

A summary of reports on post-war projects and deferred maintenance items in Schenectady, submitted by department and bureau heads to the Interdepartment Post-War Planning Committee. To lay the foundation now for a sound post-war public works program to provide jobs for returning service men and to meet community needs, proposals totalling an expenditure of over $7,500,000 include the construction of roads and bridges, storm and sanitary sewers, schools and libraries, hospitals and public buildings, and parks. A further expenditure of $700,000 has been proposed for deferred maintenance items such as needed repairs to streets, sewers, schools, and park facilities. Those projects, which are approved by the City Council and the City Planning Commission, will be incorporated into a capital improvement program establishing a sequence according to importance, necessity, and available capital funds.

Other Reports Received

CALIFORNIA.—*How Many Jobs for Californians?* Pamphlet No. 6. California State Reconstruction and Reemployment Commission. December 1944. 26 pp.

CHICAGO, ILL.—*Newly Created Engineering Board of Review for Chicago.* By Hon. Edward J. Kelly, Mayor. Reprinted from the Journal of the Western Society of Engineers, Chicago, Ill. September 1944. Can be obtained from the Municipal Reference Library, 1005 City Hall, Chicago 2, Ill. 7 pp. Available free. 1½c postage stamp to cover cost of mailing.

CHICOPEE, MASS.—*The Chicopee Plan.* By Anthony Frank Pimentel. Chicopee Planning Commission. 1944. 19 pp.

HARRISBURG, PA.—*Five Principal Reasons for Flood Control at Harrisburg.* Harrisburg Chamber of Commerce. February 1945. Unpaged.

KANSAS CITY, MO.—*Your City Government.* Annual Report of the City Manager for 1943-1944. 48 pp.

LOS ANGELES, CALIF.—Social Adjustment Bibliography No. 2. Planning for Los Angeles. Recent Plans and Background Material Relating to the Los Angeles Metropolitan Area. Municipal Reference Library, 300 City Hall, Los Angeles, Calif. Jan. 1, 1945. 11 pp. 10c.

MULTNOMAH COUNTY, ORE.—*Budget Facts and Financial Statistics for* 1944-1945. Annual Report of the Tax Supervising and Conservation Commission of Multnomah County. Nov. 20, 1944. 80 pp.

NEW HAMPSHIRE.—Report of the New Hampshire Council on Post-War Planning and Rehabilitation. New Hampshire State Planning and Development Commission, Concord, N. H. Dec. 1, 1944. 49 pp.

PORT HURON, MICH.—Annual Report, 1943-1944. 45 pp.

RICHMOND, IND.—Annual Report of Controller for Year Ending Dec. 31, 1944. 15 pp.

SAN DIEGO, CALIF.—City Manager's Annual Report for the Fiscal Year Ending June 30, 1944. 19 pp.

STOCKBRIDGE, MASS.—Annual Reports of the Town Officers of Stockbridge, Mass., for the Year Ending Dec. 31, 1944, and Report of the School Committee and Superintendent of Schools for the Year 1944. 98 pp.

WILLIAMSTOWN, MASS.—Annual Report for the Year ending December 31, 1944. 108 pp.

AMERICAN MALLEABLE IRON—A HANDBOOK.—Malleable Founders' Society, Union Commerce Bldg., Cleveland 14, Ohio. 1944. 367 pp.

THE FIRST STEP AND . . THE UNFINISHED TASK. Summary of a Report, *Post-War Planning —A Case Study, San Bernardino County, Calif.* Pamphlet No. 5. California State Reconstruction and Reemployment Commission, 631 J St., Sacramento 14, Calif. November 1944. 31 pp.

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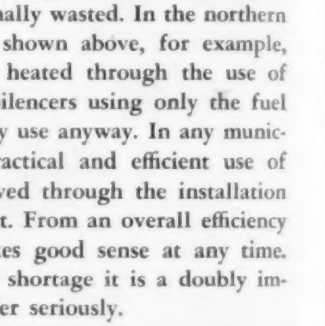
Maxim Heat Recovery Silencers save fuel because they produce usable steam or hot water for heating or processing operations, using as a heat source engine exhaust heat that is normally wasted. In the northern Minnesota power plant shown above, for example, the building is entirely heated through the use of Maxim Heat Recovery Silencers using only the fuel that the engines normally use anyway. In any municipal plant this same practical and efficient use of waste heat can be achieved through the installation of this Maxim equipment. From an overall efficiency point of view, this makes good sense at any time. During a period of fuel shortage it is a doubly important saving to consider seriously.

Maxim Silencers without the heat recovery feature are available for effective silencing of internal combustion engine exhaust or intake, steam engine exhaust, air compressor intake, vacuum pump discharge, blower intake and discharge. Engine exhaust silencers available with or without spark arrestor. Bulletins on request.

Bulletin WH-101 is an eight-page illustrated folder showing various types of heat recovery silencers and also practical working hook-ups. We will be glad to send you a copy on request.



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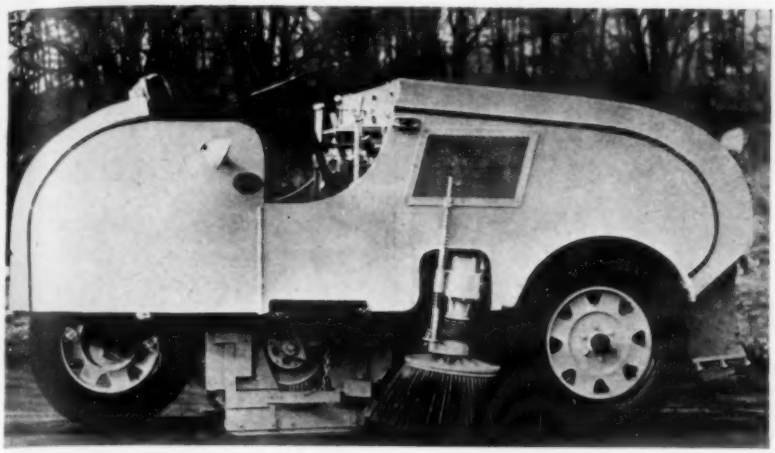
News and Illustrations

Items of Interest to City, Town and County Officials and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings



The Gutter-Snipe Pick-Up Street Sweeper sweeps 5½ feet of road surface and will take up both dirt and refuse.

A Compact Street Sweeper

Designed to meet exacting street cleaning requirements, the Gutter-Snipe pick-up street sweeper manufactured by the Municipal Supply Co., South Bend 23, Ind., is streamlined, compact, short, narrow, short turning, sweeping a 5½-foot swath.

The pick-up broom is supported in self-aligning bearings, thus permitting uniform sweeping on uneven or crowned pavements. The suspension of the broom allows, through correct pressure on the pavement, for the most effective sweeping and for longer life. The gutter broom is large and capable of digging heavy accumulations out of the gutter. Damage from running against the curb is prevented by the use of pivots.

The hopper attached to the sweeper measures 1½ cubic yards, is made of rust-resisting steel, and will carry at least ¾-yard of refuse. It is equipped with an independent control which permits carrying a load to any point at high speed for dumping.

The Gutter-Snipe is equipped with a sprinkling attachment which applies a fine atomized spray ahead of the broom and lays dust without creating any mud. Rear wheel steer allows greater maneuverability, especially cutting around parked cars and turning corners.

Versatile New Product for Water Plants

Industrial Chemical Sales Division of the West Virginia Pulp and Paper Co. is now offering for experimental evaluations two types of Indulin, a lignin* product derived from pine wood. This product has been developed from the by-products of the wood pulp industry and some of the many potential uses for this product may be listed as follows:

As an adsorbent it is capable of adsorbing gases and will remove color from aqueous solutions; as a corrosion inhibitor it may be added to boiler feed water where it deposits a film over the surface of the boiler tubes inhibiting intercrystalline attack and embrittlement; used in cement it acts as a peptising agent increasing the workability of the cement; in water treatment, aside from its ability to adsorb color, Indulin has two other qualities, iron removal and water softening. Its ability to remove iron from water compares favorably with that of inorganic iron removers. As a water softening agent, synthetic resins prepared from lignin have the property of softening water by ion-exchange.

A booklet entitled "Indulin" may be obtained by writing Industrial Chemical Sales Division, West Virginia Pulp and Paper Co., 230 Park Ave., New York 17.

* EDITORIAL NOTE: Lignin promises to become the basic material for a new chemical industry even more important than that based on coal tar.

Dual Fuel Engine

An engine capable of instantaneous conversion from oil to gas fuel without change in load or speed has gone into production at the Buffalo works of the Worthington Pump and Machinery Corp., Newark, N. J. Conversion from one fuel to the other, or adjustment of a combination of both, is accomplished by one revolution of a single control wheel.

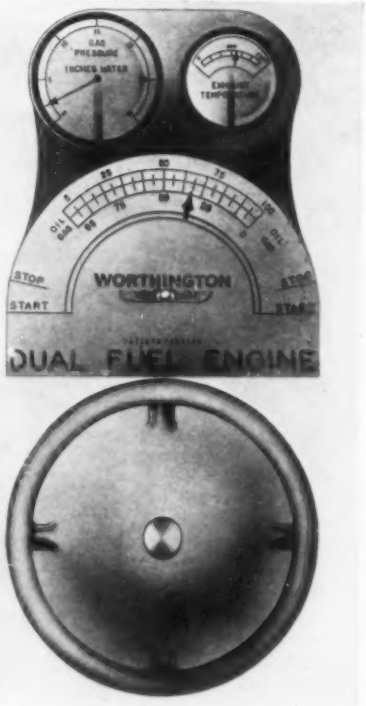
The need for an internal combustion engine capable of operating either on gas or oil fuel, or quantities of both, has long been apparent. The Worthington dual fuel engine meets these requirements ideally, as it is able to burn either gas or oil, or both together. Regardless of the fuel being used, the engine operates on the highly efficient Diesel cycle, thus realizing fuel economies heretofore unobtainable in gas engine operation. This unit does not require a high-pressure fuel gas supply to the engine. A pressure of two inches of water is used.

When operating a gas engine, pilot oil-ignition is used, eliminating electric-ignition. Pilot fuel can be used in amounts as low as 5 percent of the total full load btu requirements of the engine.

Fuel consumption, when the engine uses gas, is appreciably less than that of a similar engine operating on the conventional spark-ignition Otto cycle.

This system is produced by Worthington to cover the entire range of its Diesel sizes, and the units retain all of the distinctive features of Worthington design and construction.

Although the flexibility of this new system makes it applicable to many fields, it is most ideally suited for use in sewage plants, oil fields, industrial and municipal plants, gas utilities, and refinery services. The first installation is already operating in a large municipal plant. Worthington engineers have prepared information covering these applications.



These are the gages (top) and the control wheel (bottom) of the dual fuel engine.

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H-4

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A still photograph from the film, "The Highway to Alaska," gives some idea of the scenery which it has for a background.

Film Available on Alaska Highway Construction

Just released by Allis-Chalmers Mfg. Co., Tractor Division, is a 16 mm. Kodachrome film, with sound, which illustrates in 22 minutes highlights of the construction of "The Highway to Alaska" as photographed by globe trotter Herbert C. Lanks.

Cameras from Edmonton, Canada, to Fairbanks, Alaska, recorded scenery and action in the muskeg of the swamps, in the recesses of the mountain crags, in the frozen Arctic rivers, and in the stubborn forests. Some of the most magnificent scenery the Americas can offer was the everyday background for the seven months' battle carried on by the engineers and personnel of seven U. S. Army regiments and 50 contractors.

The film is available to all interested groups, without charge, in sound-on-film only, which cannot be run on a silent projector. When requesting a print, be sure to give the date wanted, since only a limited number of films are available and must be scheduled for efficient handling. Direct letters to the Tractor Division Photography Dept., Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

G-E Names Head of Apparatus Media

G. W. N. Riddle has been given the responsibility for media in advertising products of the Apparatus Department of General Electric Co., Schenectady, N. Y., according to an announcement by W. V. Merrihue, Manager of the Advertising and Sales Promotion Divisions.

G. W. N. Riddle

Mr. Riddle has been engaged in market research work for the company since August 1943. For fourteen years prior to that date, he was on the staff of the Chairman of the Board, serving under both Owen D. Young and P. D. Reed. He was graduated from Harvard in 1929 with the degree of Bachelor of Science, and subsequently received his Master's degree from Columbia University.

Sales Representatives for Yeomans Brothers

The Van Devanter Engineering Co., St. Louis, Mo., has been named sales representatives for Yeomans Brothers Co., 1433 Dayton St., Chicago, Ill., manufacturers of pumps, compressors, and sewage treatment equipment and will handle sales and service to municipalities in eastern Missouri and southern Illinois. H. L. Grossman Co., St. Louis, will continue to represent Yeomans in the building and industrial fields in most of this territory.

M. S. Van Devanter, founder of the firm, has had wide experience in sanitary engineering. He is President of Russell and Co., Inc., which specializes in erecting, maintaining, and operating sewage treatment plants and other sanitary facilities for municipalities. In this connection he maintains a well equipped laboratory for biological analysis, enabling him to keep a check on purification results being secured from treatment plants under his supervision.

Several years spent with the Missouri State Highway Department, handling all types of construction, before returning to private consulting work gives him experience in design, construction and maintenance of treatment plants that will be of benefit to municipalities engaged in post-war planning

Northrop to Distribute Copper Tubing

Northrop & Company, Inc., 50 Church St., New York 7, N. Y., has completed arrangements to distribute to water departments and water companies the line of copper tubing, fittings, and water works brass goods manufactured by Chase Brass & Copper Co., Waterbury, Conn.

Reasonable quantities of tubing are available at the present time, though stocks are limited and it may not always be possible to make spot shipments. While restrictions on copper tubing have been eased by WPB the company requests that when ordering utilities purchases be restricted to no more than 60 days' requirements. The company will keep up-to-date on priority regulations and will, on request, be glad to furnish information in effect at all times.

Engine Firm Receives Fourth Production Award

Employees and management of the Sterling Engine Co., Buffalo, N. Y., have been awarded their third star to be affixed on their Army-Navy "E" flag, signalizing a continuance of high production standards for war. Announcement was made in a letter from Admiral C. C. Block, USN (Ret.) to Addison F. Vars, President of the company.

Sterling engines powering many types of craft for the Army, Navy, Coast Guard, and for the Allied Nations include Sterling Admirals, Vikings, and Petrels in power ranges from 85 hp to 1,800 hp.

Out of many years experience building engines for both marine and stationary power applications, the company recently announced the new Viking Diesel engines, six and eight cylinders, supercharged and unsupercharged to meet the horsepower requirements of a wide range of power needs.

Handbook on Pumps

One of the interesting and valuable handbooks on pumps published in recent years, *Self-Priming Centrifugal Pumps*, has just been issued by Marlow Pumps of Ridgewood, N. J. It is a long needed, definitive work on one of the most important pump developments of recent times.

CHILTON-BUTLER PHOTO

A. S. Marlow, Jr.

The treatise sets forth the principles of centrifugal action, the physics of pumping and the evolution of self-priming centrifugal pumps.

While scientific in content, the ingenious use of illustration in the handbook and simple, straightforward language make it a work that almost anyone can understand. Besides giving basic engineering information, the book tells the difference between the types of self-priming centrifugals, points out where self-primers can be used with best effect, and gives detailed instruction on how to install and care for them.

The work was completed by A. S. Marlow, Jr., just before he entered the U. S. Navy, and sums up the results of his nearly fifteen years of intimate connection with the self-priming centrifugal—a relatively new kind of pump.

Developments have been so rapid in this field that up to now it would have been difficult to produce a treatise of this kind. However, Marlow men say that basic types of self-primers have become clearly defined the past few years.

Copies of the handbook may be secured without cost by writing to Marlow Pumps, Ridgewood, N. J.

King County *(Seattle)* Washington

invested $70,000 *to save* $150,000 *annually*

Partial View Tabulating Department

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● Carroll Carter, County Treasurer, summarizes benefits as follows: "Through our Remington Rand Punched-Card Accounting and Tabulating Machines installation, we are prepared to handle 4 major operations:

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The increasing popularity of Remington Rand Punched-Card Equipment for the handling of tax collections and records makes it worthy of consideration by every public official. Copies of Certified Report No. 4409-8C, covering the King County operation in detail, are available, free, by writing to our branch office nearest you, or direct to Remington Rand Inc., Tabulating Machines Division, New York 10, N. Y.

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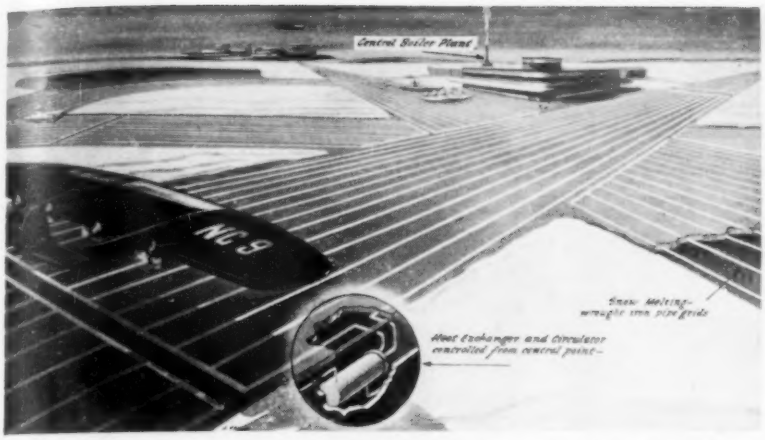


PHOTO COURTESY, A. M. BYERS CO., PITTSBURGH, PA.

Artist's conception of how the airport of the future will look after a heavy snowfall to the incoming pilot. Clear, dry runways would present a sharply defined target for pilots to aim at in landing.

Hot Water Lines to Melt Snow on Airport Runways

During December and January, airports in a number of states were closed for days at a stretch due to heavy snows, drifts, and ice ruts. One large metropolitan airport had to cancel more than 300 flights over a five-day period because its runways were completely snowbound, and it operated only on an emergency basis for almost a month.

Airport officials, designers, and maintenance engineers are watching the results obtained by underground snow-melting lines installed under truck driveways and crosswalks at industrial plants. After observing how these lines successfully handled a recent 13½-inch fall of snow in Buffalo, they believe that airports will require 1 to 1¼-inch wrought iron pipe lines spaced about a yard apart, and formed into grids of approximately 1,000-foot circuits, laid beneath the surface of runways. Steam from the airport's boiler house could be fed into a small underground heat exchanger in each circuit for conversion into hot water to be circulated by pump. With the temperature of the runway raised to 40 or 45 degrees, the heaviest snowfall would melt quickly, they say, and the cushion of warm air that would form immediately above the runway surface would rapidly absorb the water and vaporize it into the atmosphere. The result would be a clear, dry runway with little maintenance or labor expense, since the system would need to function only during the few hours each winter when snow falls.

Snow-melting lines are a reverse twist to a commonplace installation of wrought iron piping in ice skating rinks in all parts of the country where the underground lines carry brine solutions. This highly corrosive application has proved that wrought iron pipe can hold up for years without repairs or replacements.

With proven performance in truck driveways, the biggest remaining objection is reported to be the cost of the original installations of such lines. But advocates of the system suggest that they may prove highly economical in the long run. They affirm that the actual cost of snow removal at an airport serving an area having a million population runs about $200,000 annually. This includes annual charge for equipment, labor and revenue lost by cancelled flights. These advocates say that if the underground snow-melting system could be bought and installed for $3,000,000, the annual interest on the investment, plus operating and maintenance costs, would actually amount to less than is now being spent. They also affirm that the original cost of such an installation would be only a fourth to a half of the $3,000,000 figure.

The greatest appeal of snow-melting lines to leaders of the air industry is that they would permit adherence to flight schedules the year round, except for occasional periods lasting only a few hours when visibility makes such travel unsafe.

Kaiser Engineers Form New Company

A new organization to be known as Kaiser Engineers with headquarters in the Kaiser Bldg., Oakland, Calif., has just been formed. This company is composed of engineers long associated with Henry J. Kaiser and will make available to others the engineering talent responsible for the design and construction of many of Kaiser's projects as well as some of the world's outstanding projects, including the Boulder, Grand Coulee and Bonneville Dams.

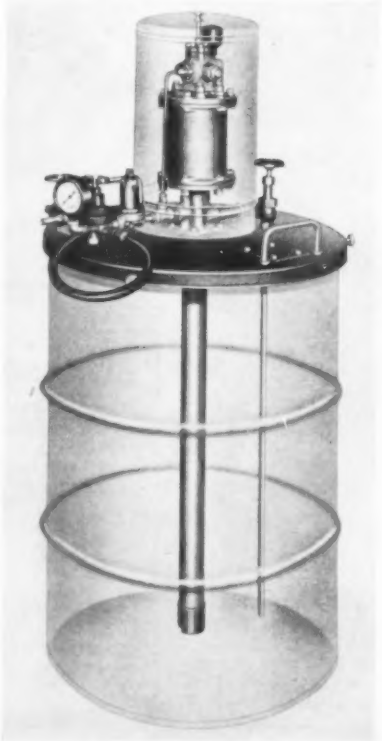
Henry J. Kaiser is President of the new organization; E. E. Trefethen, Jr., Vice-President; T. M. Price, Vice-President; and George Havas, Vice-President and General Manager. The announced policy of the company is to undertake engineering work in any part of the world. The 200 engineers on the staff include qualified engineers in all of the major fields of engineering—civil, hydraulic, structural, mechanical, electrical, architectural and metallurgical. An experienced staff is also available for procurement of materials and equipment. George W. Vreeland will serve as Chief Consulting Engineer and George B. Scheer as Chief Consulting Electrical Engineer.

New Pump for Spray Painting

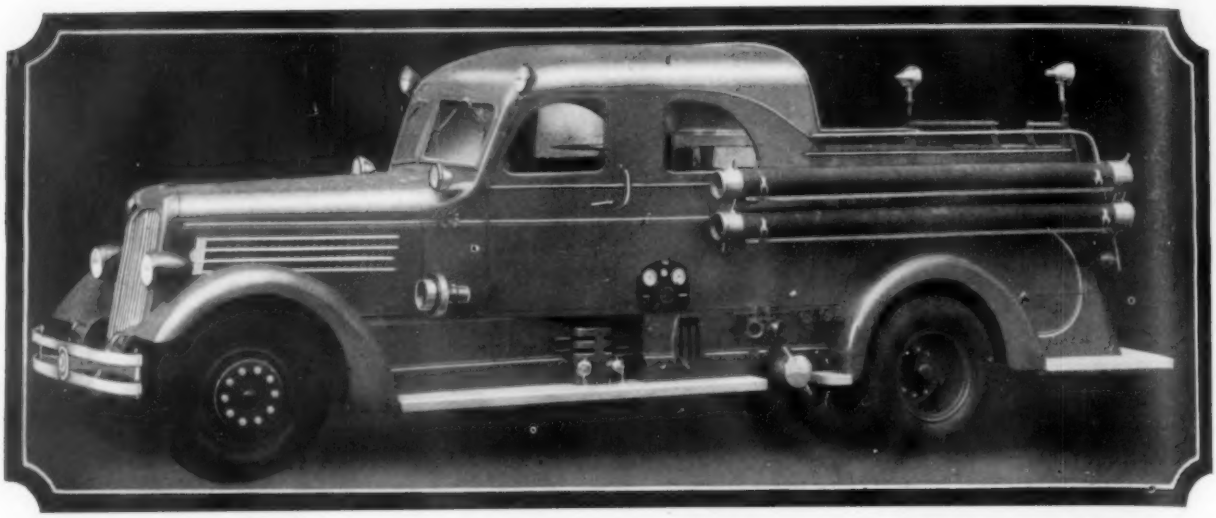
Stewart-Warner Corp., Alemite Division, 1826-1852 Diversey Parkway, Chicago 14, Ill., has introduced a new pump for dispensing and applying paints, mastics, sealers and insulating materials.

When fitted with the proper spray heads this air-operated pressure pump will handle a wide range of materials, and has been successfully used on various applications including the spraying of fibre coatings on tanks and pipelines to prevent corrosion, spraying of anti-rust paint on structural steel, the application of asphalt emulsion to concrete, and other jobs where speed and uniformity of application are essential.

This "Versatal" pump has the following advantages: it can pump material through several hundred feet of hose; it is equipped with multiple outlets, making it possible for more than one operator to work simulantously; it eliminates the need of air heads in containers, thus permitting loading without stopping any work; it pumps heavy or light consistency materials under extremes of heat or cold; and keeps materials constantly circulated and well mixed through an automatic agitator.



The Versatal Pump comes in two models; one for use with original containers, and a portable variety having its own reservoir.



SEAGRAVE 1250-GAL. PUMPING ENGINE

A pumper designed for large metropolitan areas. Unusual performance at high pressures. Powered with 12-cylinder, 240-hp. Seagrave V-12 motor. Seven-man canopy cab. Body, pump, motor and important parts are all Seagrave engineered and Seagrave built.

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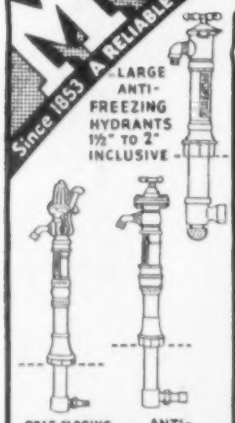
Since 1853 A RELIABLE NAME ON OUTDOOR WATER SERVICE DEVICES



They Don't Give Trouble

Small repair bills, year after year, are the bright spots on the annual reports from Water Service departments of municipalities with installations of MURDOCK Outdoor Water Service Devices.

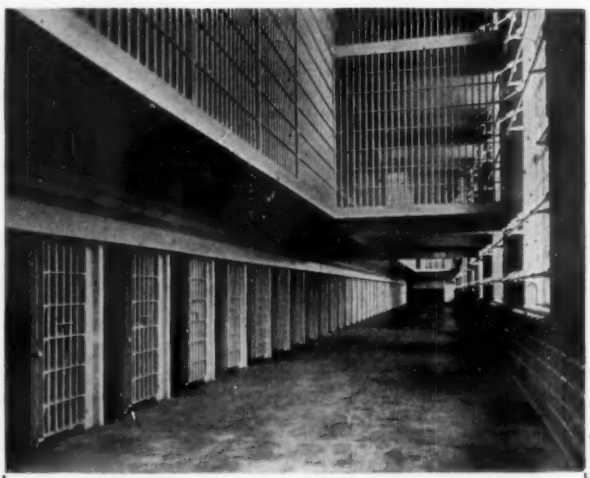
They just don't give trouble.

Repairs usually consist of an occasional rewashering and this can be done without digging up fixture.

"It Pays to Buy MURDOCK"

The Murdock Mfg. & Sup. Co.
426 Plum St., Cincinnati 2, Ohio

"IT PAYS TO BUY MURDOCK"



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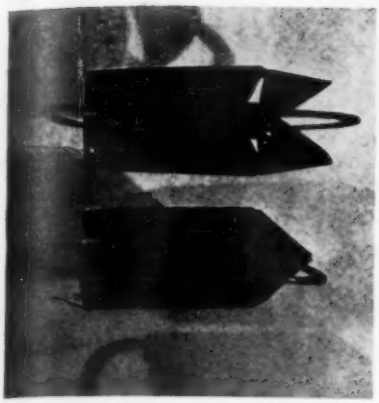


The OK Champion patented Expansion Bucket attached to a cable.

Power Sewer Cleaner

When sewers fail to function properly, the public health and safety of your community are endangered. Needless loads are put on disposal plant equipment when sewer lines carry in dirt and accumulations other than their customary sewage. To increase the efficiency of their sewers many cities are using the OK Champion Power Sewer Cleaner manufactured by Champion Corp., Hammond, Ind. This equipment takes roots, dirt, sand, and other debris from sewer mains and brings the load up to the street in one continuous operation.

The equipment consists of two complete motorized units, OK Champion manhole guide wheel jacks to guide filled buckets up through the manhole to the surface, five sizes of OK Champion Buckets, complete cable equipment, sewer rods, hand hooks, and other necessary incidental equipment. The cleaners are powered with 5 to 7 hp LeRoi motors.

During the removal process, the OK Champion patented Expansion Bucket bites into the debris, fills itself, and on a reverse pull, the jaws snap shut. The filled bucket then moves back and up through the manhole and when it reaches the surface, the jaws open and the walls of the bucket expand 10 percent, allowing the dirt to fall either on the street or into a hauling receptacle for easy removal.

The equipment is operated at all times from street level and always is moved down a street, cleaning one section of sewer line after another, without the least disturbance to traffic.

Extra-Strength Clay Pipe Covered by ASTM Specifications

In a report to the directors of National Clay Pipe Manufacturers, Inc., who met in Chicago recently, H. C. Maurer, President, emphasized 1944 developments in the relations of clay pipe manufacturers with the engineers who specify and use their products and stressed those features which should work to their mutual advantage during 1945 and for many years to come.

Mr. Maurer pointed out that the American Society for Testing Materials now includes in its standards, specifications for extra-strength vitrified clay pipe. These new specifications are distinct from former specifications for conventional vitrified clay pipe, which also were improved during the current year. There are now two standards of ASTM applying to clay pipe: one for extra-strength clay pipe under designation C-200-44-T, and the other for clay sewer pipe under designation C-13-44-T.

Extra-strength pipe is eminently suitable for combinations of subsurface and surface drainage lines, and for cases where intense surface loadings are involved.

This pipe has been produced and used for approximately eight years in increasing amounts in connection with highway work, railway work, airport surface, subdrainage railroad construction, and in many other cases where high strength is required to resist intensive loads. Typical was its use in the Willow Run Bomber Plant of the Ford Motor Co., where its strength and inertness to trade wastes made it ideal for the industrial waste disposal lines installed in that plant.

It is an answer to the old drainage problem of many airports. With the advent of bombing planes weighing from 100,000 to 150,000 pounds and the prospects of even bigger and heavier transports of the future, the greater resistance to crushing of extra-strength clay pipe makes it ideal for drainage here.

Maurer stresses that the high strength of extra-strength clay pipe has been brought about by a combination of increased wall thickness of the pipe and by improvement of manufacturing processes. Made of the same material as conventional sewer pipe, namely, vitrified clay, its inherent chemical properties guarantee longest posible life.

Baker Bulldozer Halts River of Flame

A Baker bulldozer on an Allis-Chalmers crawler tractor performed an unusual task on an English hillside and saved an English village.

A storage tank, containing thousands of gallons of aviation gasoline, received a direct hit from an enemy bomb, releasing a flood of flame over half a mile of countryside. The torrent of burning gasoline, flowing at about 1,000 feet a minute, swept down the hillside into a valley, threatening to destroy a village. Attempts by volunteer firemen to fight the menace were in vain and the village seemed doomed until a bulldozer, manned by an American soldier, hove into view.

Sensing the desperate situation the Yank at the controls dropped the big blade and began scraping up and piling dirt to create a dam. He risked his own life freely in the task, for his first earth accumulations were dumped fairly in the flaming stream, and the area above him on the slope was a blazing inferno. He continued his attack until he had erected dams which diverted the blazing gasoline away from the village.

The dams broke through in spots under pressure from the burning gas and water, but these outbreaks were promptly repaired by the local fire fighters. So intense was the heat that the firemen had to be continually drenched with streams of water. By working without a break until the flames were finally extinguished, the bulldozer and the fire fighters saved not only the village, but also other gasoline stores located father down the slope.

The bulldozer was manufactured by the Baker Manufacturing Co., 503 Stanford Ave., Springfield, Ill., which has furnished large numbers of bulldozers for numerous uses on many fighting fronts.

A Baker bulldozer on an Allis-Chalmers crawler tractor is called on to perform an unusual task to halt a river of flame to save an English village.

Spreader Attachment for Granular Material

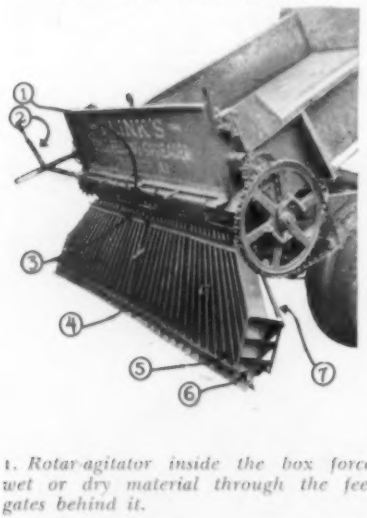
Street and road officials will welcome the new Flink Sand-Chip attachment offered by the Flink Company, Streator, Ill., for its self-feeding spreader. Used by municipal departments for ice and dust control, road resurfacing and other road work, the spreader deposits a uniform layer of sand, pea gravel, chips, or other granular materials. These materials can be laid from the thinnest surfacing up to a 2-inch layer, as desired.

The equipment is designed to hold a perfect edge; the material being forced uniformly by an agitator through an adjustable gate onto the attachment where it flows by gravity to the surface being spread.

The spreader is made in two sections and can be easily and quickly attached or detached by one man, each section weighing only one hundred pounds. Easily installed gate regulators provide for changing the width of the spread, which can be 8, 9, or 10 feet with the standard spreader and attachment, and 3, 4, or 5 feet as well, when ordered in that width.

Operation of the spreader is handled by the driver of the truck, thus eliminating the need for an additional helper on the back of the truck. The sand-chip spreader is an attachment for the Flink Self-Feeding Spreader which fits all dump trucks.

SAND-CHIP ATTACHMENT



1. *Rotar-agitator inside the box forces wet or dry material through the feed gates behind it.*

2. *Lever regulates material passing through gates.*

3. *Material forced through gates into channels divides the amount in each channel into equal portions.*

4. *The spreader is divided at this point for easy removal.*

5. *Channels farthest from center deposit the same amount of sand as at the center.*

6. *Corners fold, when not in use, so spreader will not be wider than the truck.*

7. *Spring holds folded part back and keeps it firm when the attachment is in operating position.*

Gar Wood Analyzes Jobs for Disabled Veterans

Gar Wood Industries, Inc., Detroit, Mich., is analyzing the physical requirements of every job at the company to determine exactly what sort of work can be done by partially disabled servicemen. This was disclosed in an announcement by Glen A. Bassett, President, who also announced the formation of a veteran's department.

Any veteran applying to the Gar Wood employment office is automatically referred to the veteran's department. If the medical department finds him physically able to return to his old job, he is immediately reinstated. If he has been wounded and unable to fill his former job he will be assigned to the sort of work which his disabilities permit him to fill.

Thus the placement of the disabled veteran will be on a scientific basis. The physical job analysis, which is now going on, will determine which tasks can be performed by a man who has lost his left arm, for example.

About 1,500 Gar Wood employees have entered the armed forces. Of these, 24 have been discharged and have returned. In addition, 49 other veterans, who were not former employees, have gone to work for the company.

Mark Wendt, medical director of Gar Wood Industries, will supervise the veterans' program.

RELIABILITY of Peerless Pumps never has been so evident as during the war. Countless factories, plants, farms and municipalities rely on them to give unfaltering service. Thousands of Peerless Pumps have been in operation for more than 10 years without need for repair. Precise factory methods insure continued operation. Because of the exclusive engineering design, construction and fine workmanship of the bowl and impeller assembly, original efficiencies are closely maintained over a greatly extended performance period.

Peerless Distributors and Direct Factory Representatives are located in every State.

ARMY E NAVY
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(*Turbine Type*)

Water-cooled head bearings.
Choice of oil or water lubrication.
Double bearings in each bowl.
Fully-enclosed impellers.
Double seal impellers.

PEERLESS PUMPS

PEERLESS PUMP DIVISION
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Officials participating in the Kitson presentation ceremony are left to right: Rear Admiral Wat T. Cluverius, USN (Ret.); Lieut. Col. Hayward K. Kelley; John E. Hopkins, Foundry; Edward Loges, Clock Dept.; Lieut. Gerald F. Welles, Army; and Morse DellPlain, President of the company.

Kitson Co. Honored for War Production

Employees of the Kitson Co., Philadelphia, Pa., have been honored with the Army-Navy "E" Award for outstanding production of war materials, according to word received by the company from James Forrestal, Secretary of the Navy.

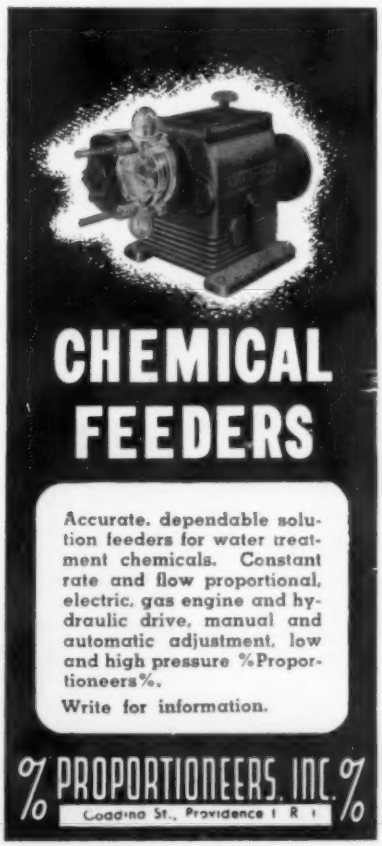
Kitson Co., a manufacturing subsidiary of the Welsbach Engineering and Management Corp., Philadelphia 2, Pa., has been for many years a manufacturer of brass products for the gas utility, water works, and plumbing fields.

According to Morse DellPlain, President, negotiations for Kitson's first war contract with the Navy were initiated in December 1940, and the completely modernized foundry has been producing bronze castings, electrical fittings, and torpedo parts for the American and British Navies since that time.

Kitson was among the first ten industries in Pennsylvania to organize a labor-management committee to promote efficiency and speed up war production. Early in 1942 they were honored by radio station WCAU with its War Production Award of Merit in a special broadcast as part of a series, "Industry Goes to War."

New Manager for Texaco Asphalt Sales

A. D. Stivers has been appointed Manager of the Asphalt Sales Dept., of The Texas Co., 135 E. 42nd St., New York, to succeed Frank V. Widger, who has retired. Mr. Stivers has been associated with the marketing of Texaco Asphalt products in the road building and other fields for the past twenty-six years. From 1919 to 1939 he worked in the southwest, first as representative and later as District Manager. In 1939 he was transferred to New York as Assistant Manager of the Asphalt Sales Department and held that post until his new appointment.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McDonald Copper Service Pipe Couplings Plate E-4753—male iron pipe thread at one end, and for copper service pipe of size stated at other end. Sizes inches ½, ¾, 1, 1¼, 1½, 2.

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DUBUQUE, IOWA
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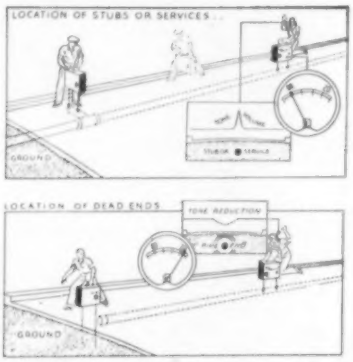
Buried Pipe and Cable Finder

M-SCOPE

Water Leak Detector



FREE 16-PAGE BOOKLET UPON REQUEST

The M-SCOPE consists of a specially designed radio Transmitter and Receiver, with conductive wire. In operation, the Transmitter sends out a continuous signal, and when there is no metal between Transmitter and Receiver, a definite volume of sound is heard in the Receiver earphones and the meter (mounted on Receiver) gives a definite reading. If a metal object lies between the two units, sound in earphones is louder and meter reading higher—and the pipe or other metal object is located.

An M-SCOPE Water Leak Detector is so "sensitive" that it can spot the exact trouble point even through concrete; so "speedy" that it can test from 275 to 300 hydrants in a single day; so "accurate" that it usually hits the trouble spot "right on the nose" and "always" within a circle two to three feet in diameter.

City Water Superintendents and Army Engineers alike, these days realize the importance of conserving "water, pipe, fuel." The M-SCOPE Water Leak Detector helps you conserve all three.

The M-SCOPE is solving—successfully—the varied problems involved in the development, operation and maintenance of buried pipe and cable systems and is in daily use by representative organizations in such important groups as:

- Government Projects
- Municipalities
- Sewerage and Water Plants
- Consulting Engineers
- Airports
- Public Utilities
- Industrial Plants
- Oil and Pipeline Companies

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KWIK-MIX BITUMINOUS NON-TILTING MIXER

An End Discharge mixer for applying cold or hot laid bituminous mixtures to new surfaces, for re-facing and for maintenance. The wide, quick acting discharge gate of the non-tilting drum reduces the time between batches. This light weight, portable unit can be quickly spotted and because of the end discharge advantage, the mixer can be conveniently pulled away from the discharged material. Equipment includes two burners which can be easily removed for controlling temperatures.

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Mathieson Appoints Chief Engineer

Howard A. Sommers, of The Mathieson Alkali Works, 60 E. 42nd St., New York 17, N. Y., has been made Chief Engineer of the corporation, with headquarters in New York.

Howard A. Sommers

Mr. Sommers joined the Mathieson organization in 1925 and served in the Niagara Falls Ammonia Plant, first as Mechanical Engineer, then as Assistant Plant Superintendent. He later held positions as Superintendent of the Dry Ice and Lime Recovery Plants at the company's Saltville, Va., division; Assistant Plant Engineer at the Niagara Falls Plant; Project Manager from the New York headquarters of the company; Manager of the Magnesium Plant at Lake Charles, La.; and Project Engineer of the company, working from the New York office.

Mr. Sommer's contributions to the chemical field include improved high pressure valves and compressor packings; general design for the liquid air and synthetic ammonia industries; the design and construction of magnesium and dry ice plants and special railroad cars, as well as smaller containers for shipping dry ice from plant to consumer.

Wallace & Tiernan Sales Manager Celebrates 25th Anniversary

Harold S. Hutton, Sales Manager of Wallace & Tiernan Co., Inc., Newark, N. J., was honored recently by his associates at a dinner at the Montclair Golf Club, Montclair, N. J., on his completion of twenty-five years with the company.

Mr. Hutton joined Wallace & Tiernan in 1920 following his discharge from the Army where he served as a First Lieutenant in the Engineer Corps. He was subsequently appointed District and Division Manager with headquarters in Pittsburgh where he was located for a number of years before coming to Newark on his appointment as Sales Manager.

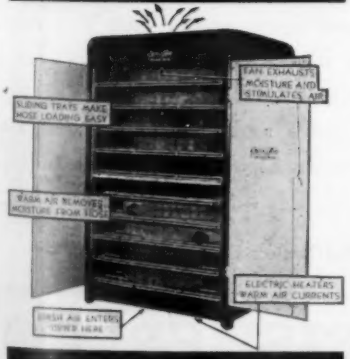
He is a member of the American Society of Civil Engineers, American Public Health Association, and American Water Works Association.

The dinner for Mr. Hutton was sponsored by the company's Diamond Club, composed of employees who have completed ten years or more of service with the Wallace & Tiernan Industries.

CIRCUL-AIR

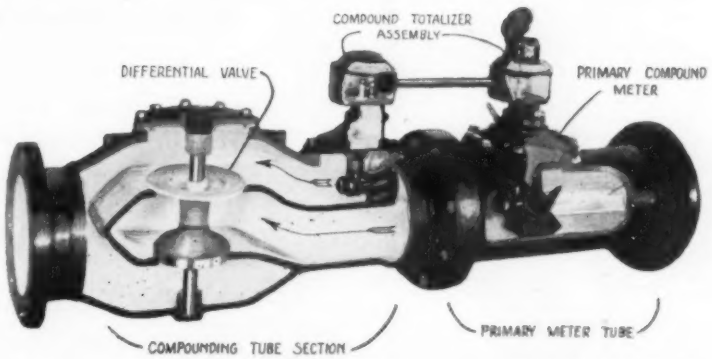
FIRE HOSE DRYER

- Is easier to use
- Saves drying time
- Reduces hose stretch
- Prevents mildew and rot
- Improves building design
- Air-conditions as it dries



THE CIRCUL-AIR CORPORATION
6339 East Palmer Avenue
DETROIT 11, MICHIGAN

SPARLING MAIN-LINE METERS



COMPOUND METERS

Accurate Over Wide Range of Flows

IN the cut-away view above, the flow is from right to left. Note the valve which begins to open, bypassing the small meter, when the flow reaches the minimum rate of the larger meter.

Registration is accurate over flow ranges as wide as 1 to 125.

There is no sharp cut-over point and the pressure loss, less than 2 pounds per square inch, is the lowest of any compound.

Indicators, Recorders and Controls are optional with all Sparling Meters.

Get the facts from Bulletin 308

R. W. SPARLING

Manufacturer of water Measuring Equipment

LOS ANGELES 54—Box 3277 Terminal Annex
CHICAGO 16—3104 South Michigan Ave.
BOSTON 8—6 Beacon Street
622 Broadway—CINCINNATI 2
101 Park Avenue—NEW YORK 17

A simple system of tax accounting . . .

. . . so flexible that it will eliminate most of the drudgery of tax bookkeeping and billing in any municipality, has been developed and mechanized by Underwood Elliott Fisher Company. It is the Sundstrand Tax Accounting system. A number of communities have found it the successful solution to most of their accounting problems.

The basic records are two unit ledger cards—one for the Assessor and one for the Tax Collector.

The *Unit Property Ledger card* is filled in from the Assessor's field sheets and they provide a trial balance of *all* the taxable properties in your town.

The *Unit Tax Ledger card* provides a complete record of taxes charged, paid and due on each parcel.

Sundstrand Automatic Tax Billing Machine.

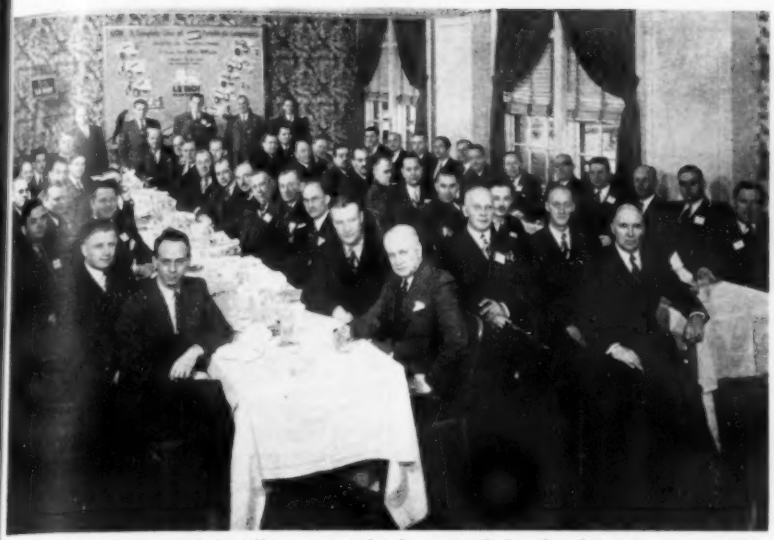
The Sundstrand Municipal Accounting Machine simultaneously prepares the tax bill, tax roll and enters the tax charge on the Unit Tax Ledger card. . . . When the payments are received, Sundstrand posts them on the Unit Tax Ledger card against the years to which they apply. Whenever desired, Sundstrand produces a trial balance of delinquent taxes, giving balances by years and the total tax due on each parcel. Let us give you free particulars.

Underwood Elliott Fisher Accounting Machines are available subject to War Production Board authorization.

UNDERWOOD ELLIOTT FISHER CO.

Manufacturer of the Famous Sundstrand Municipal Accounting Machine

One Park Avenue — New York 16, N. Y.



Members of the Le Roi distributor organization attended a breakfast in conjunction with the 26th Annual Associated Equipment Distributors convention.

Le Roi Distributors Attend Breakfast Meeting

Le Roi Co., 1706 So. 68th St., Milwaukee, Wis., manufacturers of portable air compressors; gas, gasoline, and butane engines; and engine-driven generator sets, held a breakfast at the Edgewater Beach Hotel, Chicago, on January 23 in conjunction with the Associated Equipment Distributors convention.

This breakfast was attended by members of the company's distributor organization. Its primary purpose was to outline to its distributors the company's extensive post-war plans. Company officials revealed the addition of several new compressed models to round out a complete line of units of gasoline and diesel-powered compressors which will be available in sizes from 60 to 500 cfm. The outstanding record of achievement in supplying many thousands of Le Roi portable air compressor units to the Army and Navy and to our Allies was also reviewed.

The company assured its distributors that it is prepared to meet the requirements of the contemplated post-war construction program.

Advertising Firm Moves Offices

Geo. H. Gibson Company has announced the removal of its offices from 100 Gold St., to new quarters at 50 Church St., New York 7, N. Y.

The new offices have been planned to take care of an expected expansion of business and personnel.

Distributors for George Haiss Mfg.

George Haiss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y., manufacturers of excavators, truck loaders, snow loaders, portable conveyors, clam shell buckets and other material handling equipment, has just announced the appointment of the following firms as distributors for Haiss equipment:

The Coast Equipment Co., San Francisco, Calif.
Union Tractor & Harvester Co., Ltd., Calgary, Alberta, Canada
Plains Machinery Co., Plainview, Texas
G. C. Phillips Tractor Co., Birmingham, Ala.
Harrod Equipment Co., Syracuse, N. Y.
Herman M. Brown Co., Des Moines, Iowa
A. M. Flanders, Inc., Barre, Vt.

The Ear That Locates Underground Leaks—

The GLOBE GEOPHONE

Registered U. S. Patent Office

STOP YOUR LEAKS! SAVE WATER AND STEAM!

Often the Geophone **on one leak alone** saves more than the cost of the instrument. Geophones have been successfully used by many water systems for over 25 years.

$75 buys the complete outfit: two Geophones, connecting tubes, earphones, in heavy leather carrying case, with shoulder straps.

Write:

Globe Phone Mfg. Corp.
Dept. H
Reading, Mass.

ROSS Automatic Valves

No distribution system is better than the valves that control it—

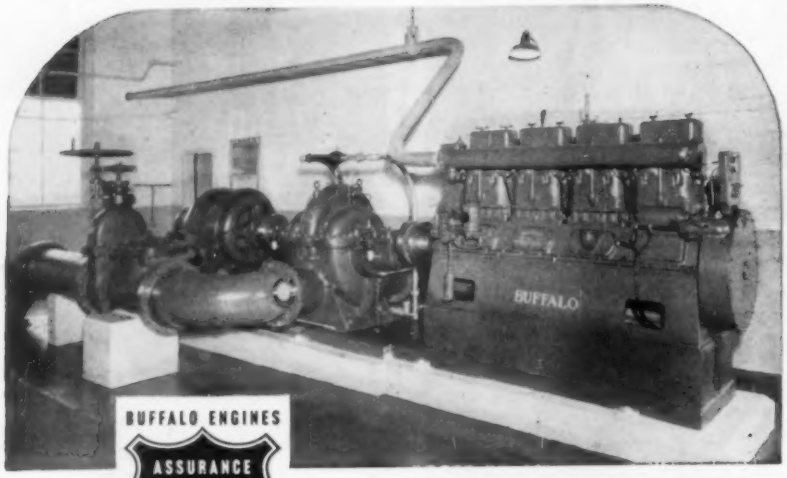
ALTITUDE VALVES
for
Control of elevation and heads into and out of tanks, basins and reservoirs.
1. Single acting.
2. Double acting.
3. Combination assembly for three or more automatic operations.

COMBINATION VALVE
Combination automatic control both directions through the valve.
A self-contained unit, with three or more automatic controls.

REMOTE CONTROL VALVE
Electric remote control—solenoid or motor can be furnished.
Adapted for use as primary or secondary control on any of the hydraulically controlled or operated valves.

Write today for catalogs and details to fit your particular system.

ROSS VALVE MFG. CO.
INCORPORATED
P. O. BOX 596, TROY, N. Y.



BUFFALO ENGINES
ASSURANCE of PROTECTION

9 MGD DeLaval Pumps installed at the Godwin St. Station, City of Portsmouth, Va. A Buffalo RAB-8 Gasoline Engine is ready as stand-by equipment.

BUFFALO ENGINES

Reduce Insurance Costs!

THE value in dollars and cents of a BUFFALO ENGINE for emergency power is not set by its F.O.B. price or its cost of installation. It is set by the Fire Underwriters as the sum of the savings from lower premiums for insuring a community or industry that has this protection. Therefore, ownership of a BUFFALO ENGINE is always profitable.

BUFFALO ENGINES always give assurance of protection and in addition they offer the extra benefits of full rated power, clean, quiet and vibration-free operation and quick starting by manual, remote or full automatic control.

Engineers and others interested are invited to write for specification sheets and data on any type of installation.

BUFFALO GASOLENE MOTOR COMPANY

DEPT. AC35 BUFFALO 13, N. Y., U. S. A.

BUFFALO ENGINES
ASSURANCE of PROTECTION

BUFFALO ENGINES — 100 H. P. THROUGH 750 H. P.— IN GENERATOR AND PUMPING SETS FOR WATER WORKS — AIRPORTS — COMMUNICATIONS — FLOOD CONTROL — HOSPITALS — INSTITUTIONS — MINES — MOVABLE BRIDGES — THEATRES — SEWAGE PLANTS.

OK CHAMPION SEWER CLEANERS

PROMPT DELIVERY—While the manufacture of material for the Armed Forces has slowed deliveries of our Power Model Sewer Cleaners, we build two sizes of hand-operated OK Champions that are ready for immediate shipment.

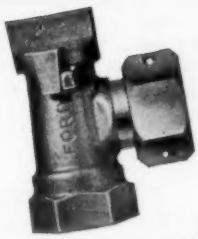
LOW COST—The OK Champion Junior and Standard Sewer Cleaners are nominally priced. The smallest towns and villages are now keeping their sewerage systems in 100% operating capacity with OK Champions.

Ask for Literature

Champion Corporation

1716 Sheffield Ave. Hammond, Ind.

Ringstyle VALVES



Quality inverted-key angle valves with coupling nuts for water meter attached. Made in three sizes. Connect to iron, copper or thin-wall lead. Simple. Easy to install. Ask for further information and free sample of RINGSTYLE Valve.

FORD Meter Box Co.,

WABASH, INDIANA

Automotive Director for Sparks-Withington

J. T. (Joe) Templeton has been appointed Director of Sales, Automotive Division of The Sparks-Withington Co., according to a recent announcement by Harry Sparks, President. Mr. Templeton's headquarters will be at the company's general offices in Jackson, Mich. He takes over his duties at once to complete post-war sales plans, thus enabling E. T. H. Hutchinson to assume direction of Sparton's eastern sales activities.

J. T. Templeton

Mr. Templeton came to Sparton from the War Department. While with the Government, he directed the termination activities at the U. S. Tank Arsenal, Bettendorf, Iowa, one of the largest ordnance terminations to date.

For the past twenty-eight years, Mr. Templeton has concentrated on sales management and distribution activities in both his own and associated companies in the automotive and allied fields.

Municipalities Specify Use of Fibre Pipe

According to a recent announcement by James R. Connell, Vice-President and Sales Manager of the Fibre Conduit Co., Orangeburg, N. Y., the following is a list of municipalities which have recently approved the use of the company's Orangeburg Pipe for house-to-sewer connections: Detroit, Mich.; Phoenix, Ariz.; Coronado, Calif.; Lakewood Village, Calif.; Blythe, Calif.; Charlestown, W. Va.; New London, Conn.; and Corning, N. Y. The state of Maine has also recently approved this product for house-to-sewer connections.

Eastern Representative for A-PE-CO

Carroll B. Kelley has been appointed field representative for American Photocopy Equipment Co., 2849 N. Clark St., Chicago 14, Ill., for Trenton, N. J., and the surrounding territory, at 79 Rock Rd., Glen Rock, N. J.

Mr. Kelley is well versed in mechanics and the use of instruments. He was formerly instrument tester at the Eclipse-Pioneer Division of the Bendix Corp. He will give service instructions in the use of the A-PE-CO photo copyer and will demonstrate new methods for war plants and war-supporting activities.

INSTALLATIONS WORLD WIDE

LARGEST CITY TO SMALLEST VILLAGE

VALVES COMPLETE EQUIPMENT FOR WATER WORKS FILTRATION AND SEWAGE DISPOSAL PLANTS

LATEST "COREY TYPE" HYDRANTS

Write for Catalogue and Information

IOWA VALVE CO.

General Offices: Hubbell Bldg., Des Moines, Iowa

Plant: Oskaloosa, Iowa

PUT WARTIME TEMPO IN YOUR PAVEMENT PATCHING

ROAD TO REOPEN IN 24 HOURS

Are you keeping pace with wartime traffic tempo? 24-hour repair service is now practicable in highway concrete patching.

Calcium chloride is the most effective as well as the least expensive way to get safe strength—FAST—in fact, in less than half the time of plain concrete.

Remember, too, that when emergency action indicates extra cement or high early strength cement or air entraining cement—yes, even then calcium chloride cuts in half the time needed to put traffic on the pavement.

Use normal protective measures, of course, but take advantage of the automatic, built-in curing that calcium chloride provides—that keeps concrete action alive when the weather is cold.

Write for Brief number C-74 on Patching Concrete Pavements and Early Opening with Calcium Chloride Admixture.

CALCIUM CHLORIDE ASSOCIATION, 4145 Penobscot Building, Detroit 26, Mich.

CALCIUM CHLORIDE

SPEEDS WINTER CONCRETE CONSTRUCTION

"We particularly appreciate BURROUGHS DEPENDABILITY today, when mechanical service is so very important"

Burroughs' ability to maintain its high service standards during these trying war years didn't just happen! Years ago, Burroughs established a definite service policy in recognition of the fact that any mechanical product can be no better than the service provided for it. Today's experienced, highly-trained service organization is the natural result of this farsighted policy of careful planning, constant study, continuous training and close supervision. It is this typical Burroughs thoroughness which makes it possible to help more and more users keep their precious Burroughs machines in action today.

1st Burroughs

IN MACHINES
IN COUNSEL
IN SERVICE

Burroughs systems and installation men have been constantly helping business machine users to make the fullest use of the equipment they now own . . . helping them to adapt their present machines to new conditions. Reference libraries containing up-to-the-minute information on machine accounting methods and procedures are maintained in all Burroughs offices. For help in getting the fullest use from your present Burroughs machines, call the local Burroughs office, or write Burroughs Adding Machine Company, Detroit 32, Michigan.

FIGURING, ACCOUNTING AND STATISTICAL MACHINES • NATIONWIDE MAINTENANCE SERVICE • BUSINESS MACHINE SUPPLIES

Eastern Sales Manager for Graver Tank

Chas. W. Springer has been appointed Manager of Eastern Sales by the Graver Tank & Mfg. Co., Inc., East Chicago, Ind.

Chas. W. Springer

Mr. Springer was formerly Sales Manager of the Barrel Division of Jones and Laughlin Steel Co., Pittsburgh, Pa., as well as a representative of the Chicago Bridge & Iron Co., Chicago, Ill., and brings to the Graver organization background of executive sales direction in the steel plate and allied fields.

The east coast sales activities will be carried on by Mr. Springer from the company's offices at 424 Madison Ave., New York 17, N. Y.

Traffic Engineer for Prismo Safety

Ray F. Riegelmeier has become affiliated with the Prismo Safety Corp., Huntingdon, Pa., as Traffic Engineer, according to a recent announcement.

Mr. Riegelmeier was formerly Chief Traffic Engineer of the Pennsylvania State Department of Highways. In this capacity he has had wide experience testing various types of traffic devices, including paints for signs and highway striping, thus giving him ample background for his work with the corporation.

"Put on Roll No. 66" or the Magic of Microfilm

Numerous city officials have asked this magazine to see that they receive information on microfilming of city records. Whereas the Photo-Records Division of Remington Rand Inc., Buffalo, N. Y., and the Recordak Corporation, New York, in normal times sell microfilming equipment for city departments to use themselves, the Microstat Corporation, 18 W. 48th St., New York 19, N. Y., moves in its camera and does the complete microfilming job for the client. Its licensees, coast-to-coast, offer the same precision quality Microfilm-by-Microstat service.

The records microfilmed vary from checks to drawings as large as 36 x 6 feet. As this operation becomes increasingly understood, it becomes increasingly essential due to the ever accumulating bulk and cost of handling, filing, maintaining and insuring records. Counties as well as cities are conscious of this need, and each of the 3,062 counties maintains vital records such as birth, marriage, death, real estate and taxation, and often many other records. After a study of county records, the Microstat Corp. designed and constructed its fixed-focus County Recorder Camera for enlarging microfilms in order to make any record easily available. A four-drawer file of papers weighing 300 pounds is reduced by microfilming to a container weighing 7 ounces.

Previous to the advent of precision microfilming and constructive legislation permitting vital and valuable records to be reduced to microfilm, law and statutory regulations required that many records be kept either indefinitely, or in the majority of cases, from three to twenty years. Now it is possible to place all these records on safety film so that they are forever protected from the hazards of peace as well as war, and at tremendous saving in filing space.

A microfilm reading machine may become as routine a part of office equipment as the telephone, dictating machine, typewriter, and adding machine. This would be a great convenience, for instance, for city engineers in studying an entire set of plans, or for a finance officer, mayor, or council in the rapid uncomplicated examination of a report. Often a secretary or a draftsman will take notes from the film or trace a drawing from the film projected on the screen. The black and white film has held the stage thus far, but maps in natural color have been made which show the city or suburbs in full and accurate color. Other post-war innovations in this already new field of records preservation are described in a 7-page report on the present and post-war role of Microfilm-by-Microstat.

The Coagulant That Cuts Costs!

TENNESSEE CORPORATION
ferri-floc
FERRIC SULPHATE

Ferri-floc . . . the ferric coagulant that is successfully and economically used in sewage treatment throughout the United States. Take advantage of modern plant research and findings: use Ferri-floc.

Tennessee Corporation's technical staff will be glad to help you with your specific problems. Write to us today. The consultation service is free, of course.

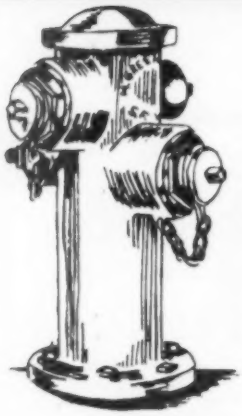
The Mark of Quality

TC
TENNESSEE CORPORATION

Tennessee Corporation

Atlanta, Georgia — Lockland, Ohio

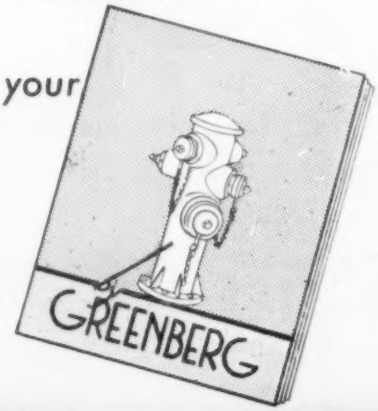
A COMPLETE HYDRANT SERVICE



Originators of the CALIFORNIA type of Hydrant, with INDIVIDUAL, integrally constructed globe type valves on all outlets. We have manufactured and sold this type of Fire Hydrant with its various improvements continuously for over seventy-five years. This is the Fire Fighter's Ideal Hydrant for use in non-freezing climates. Sold through your jobber.

FOR THE COMPLETE
Story of Hydrants for all Climates . . .

Send for your
FREE
COPY OF "HYDRANTS BY GREENBERG"



STABILITY
Since 1854

M. GREENBERG'S SONS
765 FOLSOM STREET ★ SAN FRANCISCO, 7

BIRD-WHITE TOWERS

Offer Low Initial Height with Extreme Elevations

Towers can be installed on present trucks to meet your requirements. Perfect for heavy line work, street light, signal maintenance and tree trimming.

Our engineers will welcome an opportunity of assisting you with your tower problems.

PATENTED

Bird-White offers you a modern, rugged, dependable tower lift without the prohibitive initial and maintenance costs. Simplicity of design and unique construction make this hydraulic tower lift the last word for all overhead work.

Can be adapted to streamlined trucks as well as open back utility and general maintenance trucks.

WRITE FOR DESCRIPTIVE FOLDER

BIRD-WHITE COMPANY
DEPT. AC, 3119 W. LAKE STREET, CHICAGO 12

Westinghouse Appoints Street Lighting Specialist for Middle Atlantic District

J. Howard Wenner, former Lighting Specialist for the Westinghouse Electric and Mfg. Co. at Allentown, has been promoted to the position of Street Lighting Specialist for the company's entire Middle Atlantic District, with headquarters in Philadelphia. This area includes Eastern Pennsylvania, Southern New Jersey, Maryland, Delaware, Virginia, Southern West Virginia, and parts of Tennessee, Kentucky, and North Carolina, according to the announcement made by George Maertz, District Agency and Specialties Division Manager of the company.

J. Howard Wenner

Since 1930 Mr. Wenner had been employed by the Pennsylvania Power and Light Co. at Bethlehem, Williamsport, and Allentown in lighting design and application, training of lighting personnel, and promotional activities.

From 1937, when he joined Westinghouse, until 1940 he was assigned to Westinghouse Lighting Headquarters in Cleveland where he was prominently identified with the lighting of major league baseball parks, the Great Lakes Exposition, and the New York World's Fair. He was also engaged in engineering the lighting of many other prominent commercial, industrial, and floodlighting projects.

In 1940 Mr. Wenner transferred to the Allentown office of Westinghouse and had charge of lighting activities in Central and Northeastern Pennsylvania. Here he was active in developing the Pennsylvania Turnpike and other prominent street lighting installations, in addition to his activities in the airport, industrial, commercial, and floodlighting fields.

Appoints Calcium Chloride Technical Representative

F. R. Sproule has joined the staff of Wyandotte Chemicals Corp., Wyandotte, Mich., as a calcium chloride technical representative. Mr. Sproule has been active for many years in both laboratory research and field construction on soil stabilization, and has spent 12 years in the development and promotion of materials for highway construction. He has lived on every continent and observed road building methods and materials under many climates and conditions. He spent 12 years in the employ of American Bitumuls Co., and Col-Tex Refining Co.

In his new capacity Mr. Sproule will be available to those needing calcium chloride for dust control, consolidation of gravel bases and surfaces, frost control, admix and surface curing in concrete, and for other construction uses.

Portable Diesel Plants for Emergency Use

The use army engineers are making of portable Diesel power plants in Europe leads Joseph W. Frazer, Chairman of Graham-Paige Motors Corp., Detroit, Mich., to foresee the use of these power units in supplying emergency current in communities throughout the United States where disaster has caused the failure of water supply, sewage disposal, illumination, and other services. This company is equipping generators with mobile skids for the army.

According to Mr. Frazer, generating units used by the Engineer Corps are mounted on sled-like bases so they can be towed into position by tractors. As the army moves forward the generators are used to supply power where the enemy has destroyed or damaged regular power plants. They are ready for immediate operation on arrival at a new destination and will generate sufficient electricity to meet essential needs until facilities can be restored.

Frazer said he believed similar units could be effectively "spotted" throughout this country with trained crews on call ready to transport and operate them in communities hit by fires, floods, hurricanes or earthquakes.

A timely message to City Managers

HAND heavy-duty storage batteries, when installed in the following Departmental vehicles, show long life characteristics:

POLICE RADIO CARS	3-6 yrs.
SANITATION TRUCKS	3-6 yrs.
ROAD SCRAPERS & SNOW PLOWS	3-6 yrs.
EMERGENCY TRUCKS & AMBULANCES	4-6 yrs.
FIRE ENGINES	4-9 yrs.

HAND storage batteries are unconditionally guaranteed for two years. Departmental test runs are invited.

The HAND LABORATORY
for
Electro-Chemical Research and Development
Nyack, N. Y.

Already a PROVED PRODUCT

THE PIPE OF TOMORROW

- House-to-Sewer Connections
- Downspouts
- Industrial Waste Drainage
- Septic Tank Filter Beds (Perforated)
- Foundation Drains (Perforated)

The same materials — cellulose fibre and coal tar pitch—of which ORANGEBURG PIPE are made have a successful service record of 50 years in ORANGEBURG underground electrical conduit. TAPERWELD joints assure a permanent watertight, root-proof line. Non-corrodible.

Write for bulletins showing mechanical strength, hydraulic and chemical properties. THE FIBRE CONDUIT COMPANY, DEPT. AC, ORANGEBURG, N. Y.

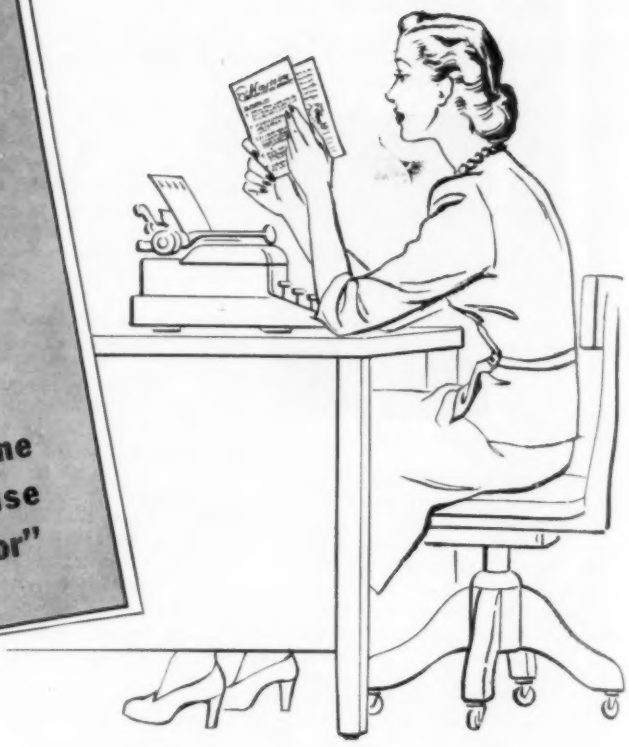
ORANGEBURG
The Roof-Proof Pipe

IF YOU'RE NEW AT THE JOB

. . . of preparing stencils

. . . of operating the Mimeograph duplicator*

Here's help for you in one handy folder, "How to use the Mimeograph duplicator"



All of a sudden you find yourself in the position of having to prepare stencils and operate the Mimeograph duplicator. You have dozens of questions you'd like answered. In fact, you wish someone would start at the beginning and tell you just how to do it . . . in simple ABC form.

With personnel changing as rapidly as it does in many offices, this situation is facing many a girl just starting out. To lend a helping hand we've prepared a booklet of basic "how-to-do-it" information—how to type on Mimeograph stencil sheets—how to run copies—how to take care of the Mimeograph duplicator. All instructions are listed in one-two-three order. You'll find them very clear and simple to follow. All you need do to get your copy is mail the coupon below. Better do it right now and find out how easy it is to prepare a beautiful stencil and run off all the copies you need.

P. S. *You should also have handy the Book of Operating Instructions. If your copy has been misplaced, request it in the coupon below. Be sure to indicate the model number of your Mimeograph duplicator.*

A. B. Dick Company, Chicago

Mimeograph duplicator

*MIMEOGRAPH is the trade-mark of A. B. Dick Company, Chicago, registered in the U. S. Patent Office.

A. B. Dick Company, Dept. AC-345, 720 West Jackson Blvd., Chicago 6.

Send me a copy of your folder, "How to use the Mimeograph duplicator" ☐

Send me the Book of Operating Instructions for Model ..... ☐

NAME.....

DEPARTMENT.....

CITY.....STATE.....

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Gardner-Denver Organizes Export Division

To facilitate handling of its export activities, Gardner-Denver Co., Quincy, Ill., has established the main office of its Export Department in the Woolworth Bldg. in New York City, according to a recent announcement.

G. V. Leece

This arrangement has been made in contemplation of an expansion in export sales activities. It will enable the company to cooperate with its export customers in providing essential equipment, such as air compressors for industrial use, rock drills and compressors, and pumps and drilling engines.

The new office will be headed by G. V. Leece, Vice-President of the company, who will now have charge of the entire Export Division. Mr. Leece has had more than 20 years' experience in the Gardner-Denver Co. as Manager of the Los Angeles office, Pacific Coast Manager, and for the last five years, Manager of the New York office, where he concentrated largely on exports.

Associated with Mr. Leece in the New York export office are S. T. Brown, Assistant Manager, and Harold Weber, Assistant Sales Manager. Mr. Brown has been located in the company's Denver plant and Mr. Weber has been associated with the New York office of the company.

Edward Church will now be connected with the Denver office in the Export Division and will be concerned with the further development of Gardner-Denver rock drills and mining equipment now utilized in all foreign fields and manufactured in that plant.

C. E. Kaiser, who was Assistant Export Manager under Mr. Church, will be in charge of the Export Division in Quincy.

To succeed Mr. Leece as Manager of the New York Branch office at 76 Ninth Ave., Gardner-Denver has appointed Gilbert H. Gaus. For the past seven years Mr. Gaus has been with the New York office as sales engineer, handling all products manufactured by the company. Before joining Gardner-Denver in 1938, he had had 18 years' experience in engineering and sales in the New York area, on pumps and other mechanical and electrical equipment for industrial plants, power plants, water works and sewage plants.

Barber-Greene Manager Released from Army

Lt. Col. C. B. Gould was recently released from the Army Air Corps after serving several years and has assumed his duties as Manager of the Detroit office of Barber-Greene Co., Aurora, Ill., manufacturer of asphalt paving machines and material handling equipment. His headquarters are at 25 E. Seven Mile Road.

Lt. Col. Gould's first assignment was at Morrison Field, West Palm Beach, as Engineer Officer of the 15th Group. From the autumn of 1943 until the date of his release he was Commanding Officer of the 54th Squadron of the Army Air Transport Command, Homestead, Fla.

The company has also announced the appointment of the following representatives in its Construction and Industrial Divisions:

Brandeis Machinery & Supply Co., Brook & Warner Sts., Louisville 8, Ky., for the Kentucky area. This firm has represented Barber-Greene for more than 25 years. Its contract renewed, it will handle sales and service in both the Construction and Industrial Divisions. In addition to its previous territory, it will serve the two tiers of counties in Indiana bordering the Ohio River.

In Western Michigan, Parmenter & Andre, 200 Ionia Ave., N. W., Grand Rapids, Mich., will represent the Industrial Division.

Western Ohio and Southeastern Indiana will be represented by Carroll-Edwards & Co., 6508 Montgomery Rd., Cincinnati, Ohio, for the Construction and Industrial Divisions.

MOTOR RECONDITIONING by experts!

YOUR Automotive Jobber!

Gasoline and Diesel motors, pumps, compressors and a multitude of other mechanical units can be promptly serviced or reconditioned by your Automotive Jobber. In addition to a complete stock of over a 100,000 service parts, tools and equipment, he maintains a completely equipped machine shop staffed by skilled personnel accustomed to precision work. He can be an invaluable source of thoroughly experienced, prompt, intelligent service.

You can depend upon your Automotive JOBBER!

NSPA

PARTS • TOOLS • EQUIPMENT
ACCESSORIES • SUPPLIES

THE COMPLETE ASSOCIATION

Devoted to maintaining and improving the Quality Standards of Service Parts, Equipment and Accessories manufacture, distribution and installation in America's thirty million automotive vehicles, and millions of internal combustion engines, and mechanical equipment.

NATIONAL STANDARD PARTS ASSOCIATION
35th Floor, 8 South Michigan Avenue, Chicago 3, Illinois

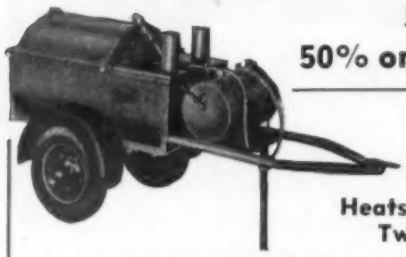
BEAN ROYAL

BEST SPRAYER INVESTMENT ANY CITY CAN MAKE . . .

JOHN BEAN MFG. CO.

Division of Food Machinery Corporation

9 HOSMER STREET, LANSING, MICHIGAN • 105 WEST JULIAN STREET, SAN JOSE, CALIFORNIA



Saves 50% on Time & Fuel

The Aeroil
HEET-MASTER
Heats Tar & Asphalt Twice As Fast

The "HEET-MASTER" will produce as much "hot stuff" as two ordinary type oil-burning kettles of the same capacity. Now obtainable on pneumatics. (Also mud guards at slight extra cost.) Send for FREE Bulletin No. 260AC. For Cut-Back and Emulsion Sprayers, Bulletin No. 190A. Oil-burning Lead and Pipe Compound Melting Furnaces, Bulletin No. 232AC. Portable Oil Burner & Torch Outfits. Bulletin 174A. Asphalt Paving Tools & Accessories, Bulletin 312A. Asphalt Paving Tool Heaters and Asphalt Pavement Heaters, Leaflet 171A.

Aeroil Burner Co., Inc., West New York, N. J.

CHICAGO 16 SAN FRANCISCO 7 DALLAS 1

DOLGE WEED-KILLER DOES ALL THREE

Place Requisitions Now!

Let Dolge lessen your labor situation by chemically controlling your weed problems. One man with Dolge Weed-Killer can often accomplish as much as six with hoes. Unwanted growth in sand traps, tennis courts, parking areas, drives, walks, gutters—thistle, nettles and briars in the rough are chemically destroyed. Limited quantities expected, so place your order today. Write for Booklet M1.

1 Strangles weeds with its action on the foliage: Kills the stems and the leaves.
2 Works down deep, penetrates roots. They cannot send up sprouts again. Weeds stay dead.
3 Sterilizes the soil. Seeds cannot take root, cannot grow.

The C. B. DOLGE CO. WESTPORT, CONNECTICUT

Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

Warren Foundry & Pipe Corp.
11 Broadway, New York City

Warren Pipe Co. of Massachusetts
75 Federal Street, Boston, Mass.

Director Named for Mack's Government Unit

John H. Middlekamp has been appointed Manager of the Government Department of Mack Trucks, Inc., Empire State Bldg., New York 1, N. Y., according to a recent announcement by C. T. Ruhf, President.

John H. Middlekamp

Mr. Middlekamp resigned as Director of the Automotive Division of the War Production Board on January 6, 1945. Prior to that he had spent a year and a half as a lieutenant colonel in the Army, handling its truck production problems until January 1, 1944 when he joined WPB.

He had been superintendent in charge of the surface lines equipment for the Brooklyn-Manhattan Transit Corp. for many years, and was brought into government service as a transportation expert in the Office of Production Management when that organization started to function immediately after the United States entered the war.

Mr. Middlekamp will continue as a consultant to WPB and will remain Chairman of the Truck Committee of the Combined Production Resources Board.

Firm to Distribute Highway Products

Hal G. Sours, formerly Ohio State Highway Director, and Eugene E. Baldwin of Taylor & Baldwin, Columbus, Ohio, announced recently the formation of a partnership to handle highway materials and equipment. The firm will be known as Baldwin & Sours, with offices at 83 South High St., Columbus, Ohio.

The principal products they will distribute are asphalt, road oil, chemicals for ice control, bituminous distributors and accessories, street sweepers, salt and stone spreaders, and truck scrapers. Several additional products will be added.

Mr. Sours has been in state and county highway work for the past 24 years. He served three terms as County Engineer of Summit County, Ohio, and was with the State Highway Department in northern Ohio for several years. The past six years, he has been in the Columbus office, first as the Chief Engineer and then Director of the State Highway Department. For two years he was President of the American Road Builders' Association and more recently Vice-President of the American Association of State Highway Officials.

Mr. Baldwin has been a member of the firm of Taylor & Baldwin for the past 20 years.

RUSTING PREVENTED *Electrically*

Modern, service-proved Rusta Restor method . . . using safe, low voltages . . . gives lasting protection . . . for the cost of just one good paint job.

● Rusta Restor, the cathodic (i.e. electrical) method maintains the tank in an "electro-negative" or "neutralized" state that *prevents* rusting. Not a "magic" but a thoroughly scientific method proved on tanks from coast to coast. Rusta Restor is modest in first cost,– uses the current of only one light bulb. Engineering of each intallation to your individual tank and water conditions assures efficient, reliable performance. Send for full details today.

Send for Catalog

RUSTA RESTOR

THE PROVEN CATHODIC (i. e. ELECTRICAL) RUST PREVENTIVE
A DIVISION OF
THE JOHNSTON AND JENNINGS COMPANY
861 ADDISON ROAD ● ● ● CLEVELAND 14, OHIO

OCECO VAPOR CONSERVATION AND FIRE PREVENTION EQUIPMENT FOR VOLATILE LIQUID STORAGE TANKS . . . STOWE STOKERS . . . HAMMERED FORGINGS

★ ★

Fresh, high quality broom fibres last longer

AFRICAN BASS FIBRES

INDIA PALMYRAH STALKS

The longer mileage you obtain from fresh broom fibres means less time-taking refilling of the broom core and valuable man-hours put to an extra use. The use of fresh, high-quality fibres in your mechanical sweeper is sound economy these days.

We are able to service every need in all types and sizes. We would be happy to receive your request for samples and quotations.

MOUNTAIN HICKORY SPLINTS

STEEL WIRE SWEEPER STALKS

The OTTO GERDAU CO.
82 Wall Street, New York 5, N. Y.

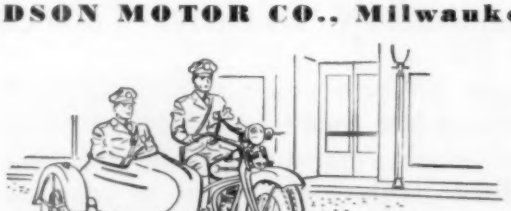
HARLEY-DAVIDSON MOTORCYCLES MEET POLICE REQUIREMENTS IN CITIES OF ANY SIZE

West Lafayette, Indiana, 5,095 population, received WPB approval for this 1945 Harley-Davidson Police Motorcycle.

NOT only are Harley-Davidson Police Motorcycles establishing outstanding performance records in America's large cities—but they are serving equally well in smaller communities. Where they are used makes little difference—it's the kind of job they do that counts.

And remember that dependable Harley-Davidsons have what it takes to extend your department's range of action—provide more frequent coverage of all patrols—and maintain more effective conformance with traffic and other regulations through constant evidence of uniformed authority. Harley-Davidson Motorcycles are available now for vital police needs. See your Harley-Davidson dealer today.

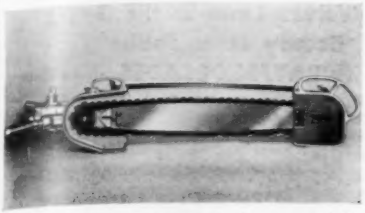
HARLEY-DAVIDSON MOTOR CO., Milwaukee 1, Wisconsin



HARLEY-DAVIDSON

Police Motorcycles

★ ON AMERICA'S FRONT LINES OF ACTION ★



The Lombard compressed air saw weighs only 42 pounds.

New Air-Driven Power Saw

Lombard Governor Corp., Ashland, Mass., has announced a new air-driven power saw for use in municipal parks and on public building projects.

This compressed air model weighs just 42 pounds, and is said to be the lightest made. It is operated by a 3½ hp motor at 90 cubic feet of air at 90 pounds pressure, and has a cutting capacity of 24 inches. The saw can be equipped with a 5 hp 36-inch cutting blade, or 24-inch and 36-inch 3-phase, 60-cycle 220-volt, AC electric models. A safety guard, the full length of the top, provides protection when the saw is in operation.

The saw will cut through soft wood at an average of about an inch per second—hard wood in about double that time. Standing trees can be cut within 2 inches of the ground.

A particular feature of this new saw is its patented interlocking chain feature. If a chain link is damaged by a bolt or spike in the wood it may be replaced in about five minutes' time by removing chain, unhooking damaged link and hooking in a new one.

One feature of the saw is a detachable "Helper's End" which can be removed of the saw becomes pinched by the log. Although generally used as a 2-man saw the removal of this end allows the saw to be used by a single operator for either backing or filling.

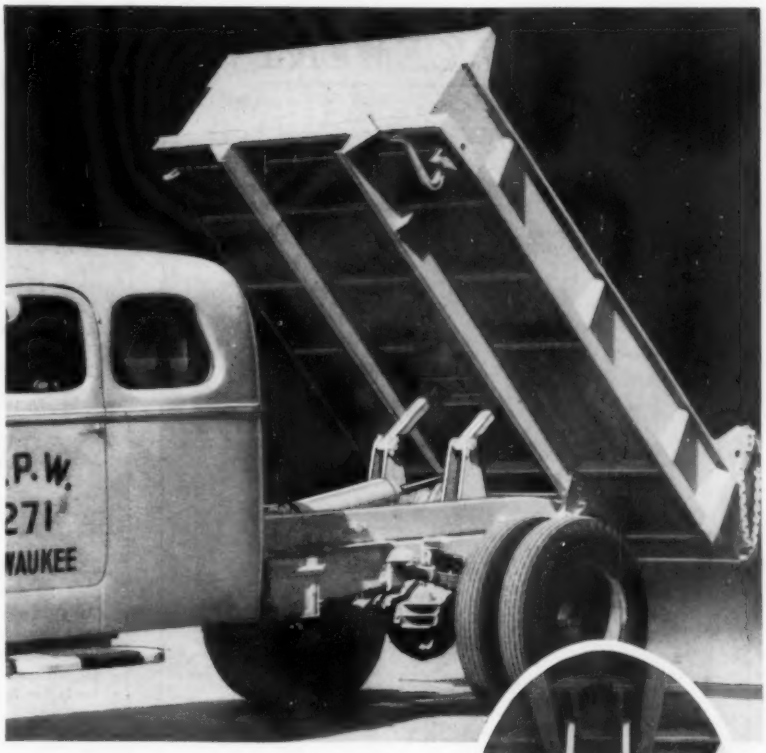
Faraday Electric Moves Office to Chicago

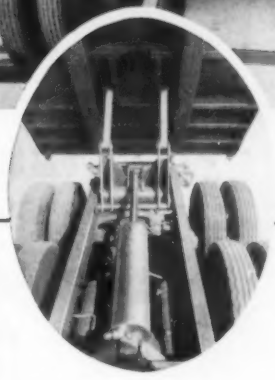
Faraday Electric Corporation is moving its executive, sales, and advertising offices, effective March 1, to 11 S. LaSalle St., Chicago 3, Ill.

The move to Chicago from the plant at Adrian, Mich., involves Paul H. Hill, Vice-President in charge of sales; Joseph E. Fanning, Assistant Sales Manager; Herbert W. Schild, Advertising Manager; Paul G. Taylor, Manager of Merchandise Division; Frederick T. Mayer, Manager of Cornice Division, and F. E. Howell, Manager of Transportation Division.

It has also been announced that the Stanley & Patterson Division of the Faraday Electric Corp. moved to 434 Newbury St., Boston 15, Mass., March 1. The machinery and personnel of the Holtzer-Cabot Signal Division, as well as that from the Faraday plant at Adrian, Mich., will be combined at Boston.

Paul E. Freiwald is Sales Manager of this division, and George Rick will be in charge of manufacturing.





HEIL *twin-arm hydraulic*
DUMP UNITS

...have the quality features that assure you of years of dependable performance

Here is a rugged unit that lifts loads up to 13 tons to a 50-degree dumping angle in 10 to 15 seconds. This job is being done day after day in many cities, because of three important features: (1) The precision-built oil gear pump, machined to close tolerances, provides maximum efficiency. (2) The hydraulic cylinder, honed to .0015 degrees of circular perfection and tested under a "pressure rack," withstands loads far greater than rated capacity. (3) The perfectly balanced lift arm aids in creating a low and uniform oil pressure for smooth operation.

Increase the efficiency of your crews by specifying "Heil" on your next order for dump units.

Write for informative bulletins.

Mounting above chassis frame makes Heil arm hoist easy to install, easy to shift...

The new Heil arm-type hoist has a mounting of 13" to 14" above the chassis frame. This style of mounting makes it easily adaptable to any truck chassis. The complete unit is easily adjustable and can be shifted, if necessary, to compensate for an odd wheel base or to vary the load on the rear axle to gain better traction during winter operation. All this can be done without altering the chassis in any way.

BH-106

ARMY NAVY
THE HEIL CO.
GENERAL OFFICES • MILWAUKEE 1, WISCONSIN

ANNOUNCEMENT

The RENSSELAER VALVE CO. is pleased to announce that hereafter it will handle sales of the famous DEAN VALVE OPERATOR. Inquiries solicited.

The Modern Way

RENSSELAER VALVE CO., TROY, N. Y.

A Velvet Lawn is the Gauge of Beauty in a Public Park With RAYFLEX BLADES—Ever Sharp Unbreakable Efficient Flexible

- Lawn Mowers
- Push 100% Easier
- Give Uniform Shear
- Improve Turf
- Stay Ever Sharp

(By Flexible Blade Action)

RAYFLEX Blade renders wire, stones, and other obstacles harmless to the reel.

RAYFLEX Installation is almost as simple as changing a razor blade.

RAYFLEX Flexibility maintains contact with the revolving blades, for clean cutting.

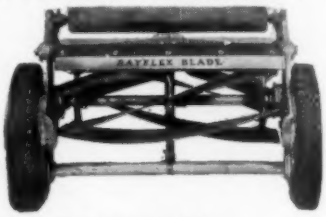
RAYFLEX Blades, of best flexible steel, tempered for toughness, are always efficient.

POWER MOWER Sizes $3.50 up
HAND MOWER Sizes $2.10

For Size: Turn mower upside down and measure length of stationary blade (bed-knife), as shown in picture.

FREE TRIAL OFFER

Send for RAYFLEX Blade on official letterhead. Use it for 30 days. If not satisfied, return for full credit. This offer is for limited time only.

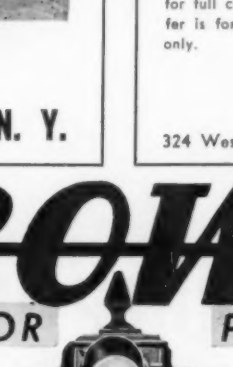


FLEX-BLADE WORKS
Dept. AC
324 West 70th St. New York 23, N. Y.

AROWAY

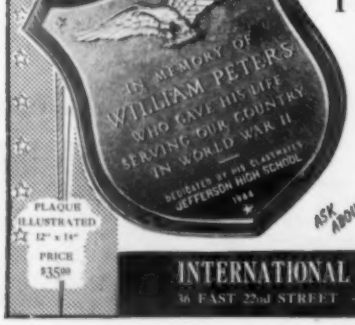
TRAFFIC SIGNALS FOR POST-WAR DEMANDS

Aroway will lead the way in post-war Traffic Signals because they are the simplest, clearest and most practical to avoid traffic snarls and costly accidents. The great hazards of traffic demand more than the old-fashioned Stop and Go Signals. The modern Aroway Signal is all-encompassing. It eliminates auxiliary signs like No Left Turn; No U Turn; Straight Ahead, etc. Aroway Signals are complete at one focal point: *at the Stop and Go lights* and even those who cannot read or discern color will see the open and closed traffic lanes at a glance.



The demand for Aroway Traffic Signals for post-war demand will be tremendous. So get preliminary data now. Write to:

AROWAY TRAFFIC SIGNALS, INC. **JOHNSON CITY, TENNESSEE**



WAR MEMORIAL PLAQUES...

RAISED LETTER PLAQUES MOUNTED ON GENUINE SOLID WALNUT SHIELDS

LOOK LIKE REAL BRONZE

MANY SIZES & DESIGNS

ASK ABOUT OUR HONOR ROLL PLAQUES TOO!

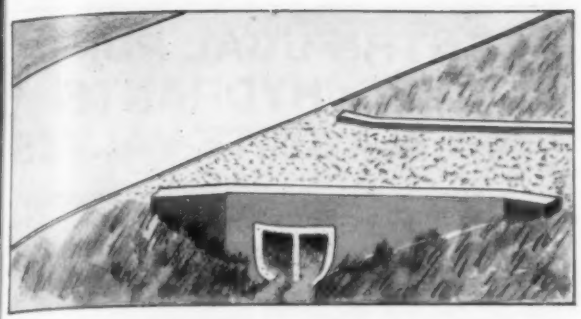
INTERNATIONAL BRONZE TABLET CO.
16 EAST 22nd STREET · NEW YORK 10, NEW YORK

ANTHRAFILT

A Filter Medium For All Purposes

ANTHRACITE EQUIPMENT CORP.
101 Park Ave. New York

Address Technical Inquiries to
H. G. Turner, Research Engineer
STATE COLLEGE, PA.



Robinson Stamilite culvert here provides highway drainage under a driveway, and supports trucks and heavy machinery without danger of crushing.

Sub-Surface Drainage Pipe

Construction and maintenance men connected with engineering of roads and streets are familiar with the importance of proper sub-surface drainage to insure safe roads for traffic as well as to increase the life of a road or highway.

Vitrified Clay Skip-Pipe, manufactured by The Robinson Clay Product Co., Akron, Ohio, is used for efficient subsurface drainage. The pipe has great structural strength, and, the company points out, is economical to lay. With it, highway engineers can reduce maintenance costs since inadequately drained highways require more maintenance to prevent the road from disintegrating.

Another Robinson product, Staminite Skip-Pipe, has all the advantages of regular Skip-Pipe, plus a structural reinforcement which allows its use where extra-heavy surface loads are encountered. The strength of Staminite provides Skip-Pipe performance where surface loads introduce the problem of breakage during operation.

Staminite can be used for driveway culverts. However, for this purpose it is not made with the opening on the top cradle or pipe as it is when used as a heavy-duty underdrain or surface gutter.

Gugert Now With P. Thompson Tool Co.

P. Thompson Tool and Supply Co., New Orleans, La., announced recently the appointment of Theo. (Ted) A. Gugert as Manager of its Utilities Equipment Department.

Mr. Gugert has had 25 years of experience in the municipal field having been with R. D. Wood & Co., 400 Chestnut St., Philadelphia 5, Pa., and Dixie Mill Supply Co., New Orleans, La.

Denis O'Brien Dies Suddenly

Denis F. O'Brien, Chairman of the Board of the A. P. Smith Mfg. Co., East Orange, N. J., died suddenly on January 31.

Mr. O'Brien's business career in this country began in Detroit where he was General Manager of the Galving Brass and Iron Works. In 1896 he came East and with Mr. Smith formed the A. P. Smith Mfg. Co., at Newark, N. J. Mr. O'Brien was Treasurer of the company until Mr. Smith's death in 1910 when he became President and General Manager.

He patented and developed many types of valves, valve inserting machines, lead furnaces and hydrants, including the O'Brien hydrant which is standard equipment in New York, Philadelphia, Baltimore, St. Louis, and many other principal cities in the country.

Mr. O'Brien was a director of both the National Metal Trades Association and the Water Works Manufacturers Association.

Second Production Award for Peerless Pump

A second "E" award, a white star, has been given to the employees and management of the Peerless Pump Division, Food Machinery Corp., 301 W. Ave. 26, Los Angeles 31, Calif., for six additional months of production excellence.

Large shipments of Peerless Pumps have been made overseas and to Army posts. Parts for the famous amphibious "Water Buffalo" are also produced in the plant.

Now Available!

METAL SIGNS

In the interest of safety and civic pride — now you can replace old and defaced signs with bright new Cataphote signs like this. Both Reflector and plain metal signs now available. Variety of messages. Long-life, low-cost, illumination assured by use of Cataphote Reflector Buttons. Day-and-night effectiveness. Brilliance guaranteed 3 years. Order today!

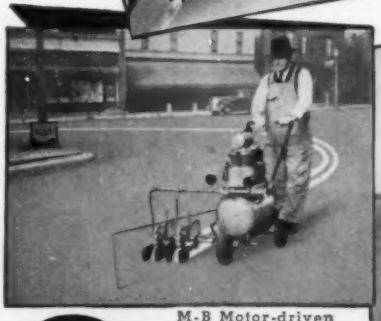
CATAPHOTE CORPORATION
Toledo, Ohio

SAFETY on the Home Front

M-B Motorless Marker striping factory aisle.

Reduce accidents to a minimum, both indoors and outdoors, by systematically striping designated traffic lanes. M-B MARKERS simplify the job. They handle ANY type of striping job — factory aisles, street centerlines, crosswalks, etc. Also handy for marking airports, athletic fields, tennis courts, playgrounds, etc. Quickly convertible to all-purpose paint sprayer for painting park benches, guard rails, traffic signs and other municipal equipment. Two types — motor-driven for all-purpose painting and motorless for striping only. Write for literature.

Meili-Blumberg Corp., Dept. A-3, New Holstein, Wis.



M-B Motor-driven Marker putting down double line at street intersection.

M-B Motor-driven unit marking single line on airport runway.

MB MARKERS

A 4365-½

REPLACE TODAY with Scotchlite SIGNS

for GREATER Safety

OVER-ALL REFLECTORIZATION . . .

. . . gives a greater reflectorized area . . . complete coverage of the surface with SCOTCHLITE increases the attention value and makes it visible at greater distances. Color remains the same day or night. They stand out like illuminated markers . . . brilliant and clear without glare or distortion.

READABILITY DAY OR NIGHT

There's no blackout of the lettering on SCOTCHLITE signs for each letter remains sharp and clear—gives greater readability and does not blend with the reflective background. Fade-out of the message at any distance day or night is eliminated.

SHAPE, SIZE AND COLOR OF DAY-TIME SIGN RETAINED AT NIGHT

. . . a feature available only with SCOTCHLITE. Day or night the appearance of a SCOTCHLITE reflectorized sign is identical in shape, color and size, making it a greater safety factor.

SCOTCHLITE is a reflectorized sheeting that is available in roll form that can be cut to any size or shape and applied to your signs. Legends can be painted or silk screen processed. If you prefer, letters can be die cut and mounted to background. Years of use on highways all over the country prove its stability and effectiveness.

If you are installing new signs or making postwar plans, be sure to review the merits of SCOTCHLITE. Write for complete information.

AVAILABLE IN ROLL FORM
MADE AND PATENTED IN U.S.A. BY

3-M

MINNESOTA MINING AND MANUFACTURING CO.

GENERAL OFFICES SAINT PAUL 6, MINN.
BRANCHES IN PRINCIPAL CITIES

CENTRIFUGAL PUMPS
FIRE HYDRANTS
A.W.W.A. GATE VALVES

Manistee single-stage, double-suction pumps, 75-20,000 g.p.m. capacity

Manistee multi-stage pumps, 50-3500 g.p.m. capacity with heads up to 1600 feet

Write for Bulletins

MANISTEE IRON WORKS CO.

MANISTEE MICHIGAN

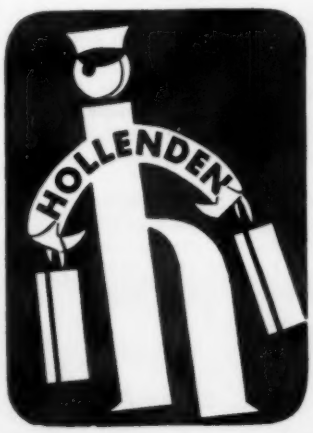
You've done your bit - -

Now do your best!

BUY MORE WAR BONDS

IN CLEVELAND

IT'S THE



HOME OF THE FAMOUS

VOGUE ROOM

1000 ROOMS WITH BATH
RADIO IN EVERY ROOM
FIVE FINE RESTAURANTS
CENTRAL DOWNTOWN LOCATION

APR 17 1945

APRIL, 1945

PERIODICAL ROOM
GENERAL LIBRARY
UNIV. OF MICH

The American City

flower show,
nsored by city of-
ls, attracted over
000 visitors to the
umbus, Ohio,
icipal Building
set a valuable
edent for other
communities.